



OFFICE,

COLONIAL BUILDINGS—44A CANNON STREET, LONDON, E.C.

For particulars of subscriptions, advertisements, &c., see the centre of the book.

Firms desirous of inserting an advertisement in *THE CHEMIST AND DRUGGIST'S DIARY* for 1875 should communicate with our office at once, as we shall soon close for press.



Mr. Giles, of Clifton, delivered a clever address on the occasion of the opening of the session of the School of Pharmacy on the 7th inst. The main portion of his speech was devoted to an elaborate denunciation of cram and crammers.

The Pharmaceutical Council met on October 7. All the members were present except Messrs. Mackay and Sutton. The President made a kind reference to the loss of Mr. Edwards, of Dartford, and suggested that a letter of condolence should be sent to the widow from the Council, which was unanimously carried. A warmly sympathetic letter on the death of Mr. Henry Deane was then read from the Massachusetts College of Pharmacy, and Mr. Sandford mentioned that he had now received, within a few pounds, the sum required for the portrait of Mr. Deane, which he had proposed at the annual meeting. The report of the delegates to the International Pharmaceutical Congress at St. Petersburg (Messrs. Greenish and Sutton) was next read. It was a good report, the chief points of which, however, we have already published, and the thanks of the Council were given to the delegates. On the motion of Mr. Greenish it was resolved to invite the Congress to meet in London on the next occasion of their assembly. He intimated that the members, generally, were very desirous that such an invitation should be given. Some considerable grants were made from the Benevolent Fund, and Mr. Brown referred to the necessity of a minute investigation of every case presented for consideration, although he explained he had no intention of suggesting that the utmost care was not now exercised. The assurance that every precaution was taken was given by several members of the committee. A committee was appointed to correspond with the Chemists and Druggists' Association of Ireland, with the object of extending the Pharmacy Act to Ireland. Lastly, Mr. Brown preferred a request for a 50*l.* grant, which he said would be wanted annually, for the Manchester Chemists and Druggists' Association. He was prepared to offer good reasons for the acceptance of his proposal. The request was referred to the Education Committee.

The first examinations under the new regulations took place on the 9th inst., when two candidates presented themselves for the Major and both failed; seven for the Minor, of whom five failed; and 27 for the Modified, of whom 13 failed. We hope that in view of such results the Board of Examiners will be kind enough to publish, both for information and guidance, a brief *résumé* of the causes which occasioned such an abundant rejection.

Pharmaceutical Examinations were held at Edinburgh from September 22 to 28. Seventy-five candidates presented themselves for the Minor Examination, of whom twenty-eight passed. Four who offered themselves for the "Modified" all passed.

The Provincial Associations have commenced their winter's work. Bristol offers the most tempting prospects to studious young men. The western city is fortunate in the possession of several eminent pharmacists who have resolved to bring about a pharmaceutical millennium, and who, with characteristic energy, have chosen their own neighbourhood for the practical exemplification of their theories. At Leicester and Northampton the assistants have for some years past carried out most honourable efforts for mutual improvement, and both these associations show signs of continued vigour. The Halifax assistants, on the other hand, if we judge from our correspondence columns, seem hardly up to the same standard. At Liverpool the Chemists' Association is in the condition idiomatically known as at sixes and sevens. Glasgow strives to make the best of both spheres, education and business, by means of classes and a published tariff. The chemists of Burnley have also associated, and have held a dinner to discuss their particular difficulties.

We reproduce from the *Sanitary Record* an article on Feeding Bottles, by Dr. Eustace Smith. Dr. Smith makes several allusions to "badly made feeding bottles," but from his article it would seem as if all those in popular use are superlatively good. The discovery made a few weeks ago by the journal in which this article is published, that most feeding bottles were provided with mysterious caves impossible to cleanse, and in which the food was rapidly soured, and thus rendered dangerous to the little stomachs for which it was destined, is, in Dr. Smith's article, politely buried as a silly mare's nest.

A quaint story of the early days of American pharmacy is contained in a contribution which we print, entitled "Backwoods Pharmacy." Coincident and in contrast with this we are able to supply a somewhat full report of the recent meeting of the American Pharmaceutical Association at Louisville. Our correspondent gives us an abstract of many important papers contributed on that occasion. Professor Bedford's account of his trip to Louisville will also, we believe, be read with interest.

Under the heading of Scientific Notes will be found an account of the recent interesting discovery of the artificial preparation of vanilline by two of Professor Hoffmann's assistants.

The election of four annuitants on the Benevolent Fund of the Pharmaceutical Society is fixed for the 30th inst. There are eight applicants. The case stated by one of them is somewhat curious. He is 75 years of age, and has dependent on him a wife aged 47, and seven children, the youngest being 16 months old!

A sad case of poisoning through the error of a chemist's assistant is reported from Dewsbury. From evidence adduced at the coroner's inquest, it appeared that Mr. Robert Schackleton, the borough accountant, was in the habit of going to Mr. Parrington's, chemist, for a draught for dyspepsia. They were accustomed to mix for him some pepsine, bicarbonate of potash, water, and spirit of ammonia. On the evening of the 22nd the deceased called in, and Mr. Parrington's assistant, Benjamin Scatcherd, was alone in charge of the shop. By error he took the acetate of morphia bottle instead of the pepsine. Mr. Parrington returned to the shop soon after, and, observing the morphia bottle out of its place, enquired as to the cause, and soon discovered the mistake. He hastened to Mr. Schackleton, and sent for several doctors. The deceased was very sleepy. Emetics were administered, and all possible means adopted to bring about recovery. Mr. Schackleton lived till the 24th, and at one time it was thought that he was almost out of danger, but he sank again, and died late in the evening of the 24th. The Coroner left it with the jury to say whether there had been criminal negligence on the part of Scatcherd. The jury, after a short consideration, unanimously found a verdict of "Death from misadventure."

THE OPENING OF THE SESSION.

WEDNESDAY, OCTOBER 7, 1874.

A LECTURE ROOM can have no better ornamentation than a crowded audience, and that adornment was not wanting when on Wednesday night, October 7, the annual prizes of the Pharmaceutical Society were distributed at Bloomsbury Square.

The attendance was one of the very best we can recollect, the students were present in full force, the elder members came to revive the memories of the past, while the ladies showed a laudable curiosity to see what both were doing. The President, Mr. T. H. Hills, occupied the chair, and said a few appropriate words to the successful candidates; the Vice-President, Mr. Alexander Bottle, gave the book prizes, which are awarded to the best man at each of the Minor examinations, and commented on the doctrine of the attainment of perfection.

Professor Redwood opened the proceedings by a report upon his class of Chemistry and Pharmacy. His remarks are of special interest, as they bear upon the alterations that have of late been effected. He could report favourably in every respect about the progress of the students. Two courses of lectures had been delivered, the first ending at the close of February. Judging by the weekly and other examinations, he was satisfied with the result. He was convinced that a course of five months' duration was essentially better than the previous long and wearisome course of ten months' duration. Sixty lectures were given, and there was an average of fifty-five attended by each student. The weekly examinations were unusually well followed, and the prize competition was exceptionally good. A bronze medal was offered by the Council to be competed for by men who had passed through the first course. There were fifteen candidates, and the prize was gained by Mr. James Kemble. No certificates of merit were offered by the authorities, somewhat to the disappointment of the remaining aspirants for honourable distinction. At the conclusion of the second course in July there were two examinations, one open to all students, for which a silver medal and certificates of honour and merit were offered, and the other confined to students of one course, a bronze medal only being offered. In the first examination there were thirteen competitors, seven of whom had obtained some mark of distinction. That these were all good men might be inferred from the fact that while the highest on the list obtained 90 marks out of 100, the lowest obtained as many as 70. The names were as follows:—Mr. William Henry Symons stood first, and obtained the silver medal; next came Mr. William Ayton Gostling, Mr. Harry Alma Thomas, and Mr. Alexander Whyte, all of whom came very nearly up to the first; and these gentlemen obtained certificates of honour. Then came Mr. Arthur Pearson Luff, Mr. Henry George Greenish, and Mr. William Arthur Thirlby, who were entitled to certificates of merit.

The successful candidate for the bronze medal also was Mr. William Henry Symons, who proved neither deficient in diligence nor in courage. The Professor hoped that these gentlemen, who had worked assiduously and well, and had richly deserved their honours, might be stimulated "to add further credit to the institution which was now conferring these marks of distinction on them, and to advance by their future labours the cause of pharmacy, which the institution had so deeply at heart."

EXAMINATION QUESTIONS.—Redwood.

THE BRONZE MEDAL.

CHEMISTRY AND PHARMACY.

Hours—Two to Five, p.m.

1. Describe the method of determining the specific gravity of a solid substance, such as wax, which is insoluble in water, and lighter than water.

2. Explain the phenomenon of capillarity.
3. Describe and explain the phenomenon of fluorescence.
4. How much water is required in a refrigerator for condensing the vapour of a gallon of water in the process of distillation? State the temperature of the water when introduced into, and removed from, the refrigerator, and mention the data on which the calculation is based.
5. Describe the sources and mode of production of carbonic acid; explain the different states in which it is met with in commerce, or required for use as a chemical reagent.
6. Describe the Pharmacopœia process for diluted phosphoric acid; explain what occurs in the process, and why the arrangements indicated are required.
7. What is the composition of acetic acid, and the strength of the different forms of this acid ordered in the Pharmacopœia.

THE SILVER MEDAL AND CERTIFICATES.

Hours—Ten to One, and Two to Five.

Morning Paper.

1. What is the value of the gramme weight, expressed in grains? What are the relations existing between the gramme, decagramme, and centigramme?
2. What is the weight of a fluid ounce of nitric acid, B.P.?
3. Name two or three articles that undergo liquid diffusion readily, and others that diffuse slowly or not at all.
4. What are the latent heats of water and of steam, and how are these latent heats determined?
5. What are the specific heats of water, oil, and mercury, and how are they determined?
6. Describe the principle of the action of the syphon.
7. Explain the meaning of the terms *digestion*, *maceration*, *percolation*, *displacement*, *elutriation*.

Afternoon Paper.

8. Describe the production of oxygen gas, its character and properties, and means by which it may be identified.
9. How is peroxide of hydrogen obtained, and what are its properties and composition?
10. Describe methods by which the decomposition of water may be effected, representing the products and reaction.
11. By passing chlorine gas into solution of caustic potash either chlorate or hypochlorite of potassium may be produced. Explain the conditions that determine the formation of these products respectively.
12. What general characters apply to the group of ligneous, saccharine, and amylaceous bodies, and in what cases and under what conditions are some of these converted into others?
13. Describe the production of alcohol, ether, aldehyde, and acetic acid. Explain the relations of these to each other and their compositions.

Deferring for a moment the Botanical Report, Professor Attfield, treating on an allied subject, must be mentioned next. He took as the basis of his remarks on practical chemistry the statement he had already presented to the Council at the close of last session. Ninety-three students had attended his class, the average period of work having been nearly four months each; but there was a difficulty in conveying accurately an adequate idea of the time spent by the pupils in the laboratories.

"He did think it was a matter for congratulation that, inasmuch as the minor examination could be prepared for, and was prepared for by the great majority of the many hundreds of candidates who now annually presented themselves, in one month or perhaps two repeated one-month courses of instruction—he could not say education—and that the majority of candidates did successfully pass the minor examination after such preparation, considering this fact, it should be a matter of congratulation to the council and members of the Society, who had spent so much effort and money in the cause of real education to find that last session so many as eighty or ninety students deliberately, and knowing what had just been stated, came to the Society's lecture-room and laboratories, and spent no less than five months in gaining their education. If they could only get the chemists and druggists throughout the country who were interested in this matter, and who employed assistants and

apprentices, to recommend their young men, even as a matter of investment, to study, not for single months in all the subjects, but after working thoroughly at 'Prescriptions,' 'Practical Dispensing,' and 'Pharmacy' in the shop, to then undergo at least a five months' course in theoretical and practical chemistry, botany, and materia medica, then the Society's school and the two or three schools at present open in the provinces might not only become self-supporting, but in time they might hope to arrive at what was equivalent to, if indeed not actually a compulsory course of five months' study, before the minor examination could be passed. And when that was accomplished, it was to be hoped there would be found in pharmacy a sufficient demand for a longer course to justify the Council in reverting in the Society's central school to a ten months' course of lectures."

When that time had arrived, there would then be found men who, while remaining in pharmacy, would devote two or three years to the prosecution of their studies, and be able to conduct pharmaceutical research. The attendance last session was good, and the demand for chemical knowledge had improved. Formerly he was distressed by students requiring no more than was necessary for their examinations; their laboratory manipulation and their home studies were founded exclusively on this view. But a better spirit now prevailed, and, with their eyes open, they had deliberately entered on such a course of instruction as would serve them, not only when standing before the Board of Examiners, but in their whole after-life.

The first prizeman was Mr. Arthur Pearson Luff, who obtained the full standard number of marks, 100. Since his sessional work he had been to South Kensington, and taken a scholarship at the College of Chemistry. The first bronze medal was awarded to Mr. W. A. Gostling; the second bronze medal to Mr. A. F. Sainsbury. Certificates of merit: Mr. A. J. Carter and Mr. W. A. Thirlby.

The following were the questions for this examination:—

EXAMINATION QUESTIONS.—Attfield.

PRACTICAL CHEMISTRY.

Hours—Ten to Five each day. Books and Memoranda permitted. Standard Number of Marks, 100.

1. Of what official *pilula* are the accompanying "two pills" composed?
2. What salts are present in "the aperient medicine" supplied to you?
3. How much sulphur is contained in the specimen of "impure precipitated sulphur" placed before you?
4. Ascertain the proportion of real acid in the sample of "diluted hydrocyanic acid."

NOTE.—Manipulation as well as results will be scrutinised.

One fact is beyond dispute, that Professor Bentley has enlisted the warmest sympathy of his class—his rising was a signal for prolonged applause. He was radiant about his little speech; he had (he said) just finished his vacation tour, but his true holiday was with his pupils; in that room specially he felt himself at home; once more, as for five-and-twenty years in succession, he had to praise the young botanists for their diligence; even when within the gates of the Botanical Gardens they were assiduous at their work. Later on a curious embarrassment seemed to steal over the Professor while reporting on the merits of the prize herbarium. It appears that the competition had been by no means severe, it had in fact been limited to one individual. Now, though singleness of purpose may be a good thing, a singleness of purposer is not desirable—and this or something else weighed on the Professor's mind. Some possible competitors he suspected had been frightened by the excellence of previous herbaria—and there was also great difficulty in finding time for the arrangement of numerous specimens. Still he considered these obstacles might be surmounted, but

whether the fortunate recipient of the medal had been equal to the task was left in some obscurity. Plants, he remarked in continuation, should be chosen, not solely with regard to number, but typical illustrations should be selected, displaying fruit, and flower, and leaf. Time, so indispensable to botanical research, might be gained by resolute early rising, for he himself had gleaned all his elementary knowledge between the morning hours of four and eight o'clock. He looked, however, hopefully to the future, and trusted that next year he should have to report more energetic competition.

In the first course the bronze medal had been gained by Mr. William Ayton Gostling. At the conclusion of the session the bronze medal was gained by Mr. Alexander Whyte. The prizes awarded for the whole ten months were given after a searching written examination, and also a *viva voce* examination in systematic and practical botany.

The silver medal was obtained by one of the Bell scholars, Mr. Arthur Pearson Luff, who, he was quite sure, judging from the very high merit he had exhibited on the present occasion, would maintain the credit of that name which was so much endeared to all in that institution. Mr. William Arthur Thirlby and Mr. Alexander Whyte also obtained certificates of honour; the first being but very little behind Mr. Luff, the latter, he believed, having obtained 116 marks out of 125, and Mr. Thirlby 113; Mr. Whyte also obtained a very good proportion of marks. Certificates of merit were also awarded to three students who most honourably distinguished themselves, namely, Mr. W. A. Gostling, Mr. W. H. Symons, and Mr. Henry George Stacey.

We thank Mr. Arthur Pearson Luff for his success; he is worth a hundred disquisitions on intellectual culture, and students like himself will do away with the reproachful sentence, "Two candidates presented themselves for the major examination, and failed to pass."

The bronze medal for the Herbarium Prize was awarded to Mr. Thomas William Nettleship.

EXAMINATION QUESTIONS.—Bentley.

BOTANY AND MATERIA MEDICA.

Hours—Ten till One.

1. Define the following:—parenchyma, prosenchyma, chlorophyll, raphides, prickle, spine, tuber, tubercle, rhizome, and bulb.
2. What are the distinctive characters of roots and stems? Give a general sketch of the structure of an acrogenous stem.
3. Describe generally the structure of the seed, and explain the process of germination.
4. What are the geographical and botanical sources of Peruvian and Savanilla rhatany? Give the general characters of the two kinds, and mention the official preparations of rhatany in the British Pharmacopœia.
5. From what plants is Alexandrian senna derived? What are the common adulterants of this kind of senna, and how may they be detected?
6. How is scammony obtained? What are the characters of pure scammony? With what substances is it adulterated, and how may they be detected?
7. Distinguish between "mealy" and "non-mealy" sarsaparillas. What kind of sarsaparilla is official, and what are the preparations of the British Pharmacopœia?

The following were the questions for the examinations at the conclusion of the session:—

THE BRONZE MEDAL.

MATERIA MEDICA AND BOTANY.

Hours from Ten till one.

1. Define the following:—epidermis, cuticle, hair, gland, stoma, vitta, lenticel, sting, herb, shrub, spine, and tendril.
2. Describe the general properties and structure of the cell-membrane or cell-wall.

3. Give a general sketch, in writing, of the distinctive characters of the stems of acotyledonous, monocotyledonous, and dicotyledonous stems.

4. Define the following:—bract, inflorescence, pollen, placenta, thalamus, ovule, seed, and germination.

5. Describe the physical and chemical characteristics of virgin scammony; mention the substances commonly employed to adulterate it, and the means by which such adulterations may be detected.

6. How is aloes obtained in the greatest state of purity? Describe the distinctive characteristics of socotrine, hepatic, and Barbadoes aloes.

7. What are the distinctive characters of aconite and horse-radish roots? Give the botanical names of the plants yielding them, the natural orders to which they belong, and state their properties, active constituents, and official preparations.

THE SILVER MEDAL AND CERTIFICATES.

BOTANY.

Hours from Ten till One.

1. Describe the different kinds of woody tissue, and mention the plants and parts of plants in which they are respectively found.

2. Describe the structure of the bark of a dicotyledon, and show how it differs from the so-called bark of a monocotyledon.

3. Define the following terms:—decurent, amplexicaul, connate, pinnate, pinnatifid, ligule, decussate, conduplicate, serrate, mucronate, pedate, and equitant.

4. Give the essential characters of the following natural orders, and enumerate the official plants which they respectively contain:—Cruciferae, Malvaceae, Umbelliferae, Atropaceae, Scrophulariaceae, and Liliaceae.

MATERIA MEDICA.

Hours from Two till Five

1. What are the official substances in the British Pharmacopœia derived from the Menispermaceae? Describe their botanical and geographical sources; their physical and chemical characters; and enumerate their official preparations.

2. What are the botanical and geographical sources of jalap? Describe the physical and chemical characteristics of the official jalap and of Tampico jalap, and show how jalap resin may be distinguished from scammony resin.

3. Describe the physical and chemical characters of nuxvomica seeds and bark. Mention the characters by which the latter may be known from cusparia bark, and enumerate the official preparations of nuxvomica and their respective doses.

4. Give the general characters and botanical sources of areca nut and larch bark, and mention their uses and official preparations.

5. Describe the characters of croton seeds, state their botanical and geographical sources, the manner in which croton oil is obtained, and the differences between East Indian and English croton oil.

THE PEREIRA MEDAL.

The Pereira Medal had been awarded to Mr. Arthur Pearson Luff, to whom the President now presented it, adding a few kindly words of congratulation.

The following were the questions for this examination:—

THE PEREIRA MEDAL.

Hours—Ten a.m. to One p.m.

CHEMISTRY.

1. How would you determine the composition of water? Explain minutely the apparatus used for its synthetical and analytical examination.

2. What are the simplest forms belonging to the regular or cubic system of crystallography? Name some of the substances whose form may be referred to this division.

3. Describe and give the methods for preparing the following:—the hydride, iodide, and carbonate of ethyl series.

4. How would you separate gold and platinum from a solution containing the two metals?

BOTANY.

Hours—Two p.m. to Five p.m.

1. Give the botanical character of the sugar cane, and a short account of its natural history.

2. Are the starch granules of wheat, barley, and maize identical in their appearance, and, if not, how do they differ?

3. Name and describe the various forms of aestivation, with an example of each.

MATERIA MEDICA.

1. Socotrine, Barbadoes, and Natal aloes each yield an aloin; describe the action of nitric acid on these aloins respectively.

2. State if Aconitum Napellus and Aconitum ferox yield the same alkaloids, and describe the method of preparing them.

3. Describe the manner in which cochineal is cultivated, and give the natural order to which it belongs.

THE PRIZE OF BOOKS.

The Prize of Books, competed for by those who had passed the minor examination in honours during the year, was presented to Mr. Arthur Pearson Luff.

The following were the questions for this examination:—

THE PRIZE OF BOOKS.

Hours—Eleven a.m. to One p.m.

State the best method of dispensing the following prescriptions, assign reasons for the same, and write the labels in suitable language:—

R Potassii Iodidi
Potassii Bromidi āā gr. xv.
Ferri et Quin. Citrat. gr. xxx.
Sp. Chloroform ʒij.
Aque ad ʒvj.

M. ft. mist. ejus cap cochleare medioere ex aquæ vel vini semicyatho vinoso, bis terve die per septimanam integram.

R Ext. Nucis Vom. gr. ʒ.
Ferri Sulphat. gr. i½.
Pulv. Rhei gr. ij.

M. ft. pil. ter quaterve die inter cibos sumend.

State specific gravities of chloroform, sp. ætheris nit., alcohol spiritus rectificatus, and spiritus tenuior.

Describe and explain the B. P. process for making pyroxilin.

State the B. P. processes for making syrup of rhubarb and syrup of tolu.

State the B. P. process for making Liniment. potassii iodici. c. sapone, and suggest any improvement that might be made.

THE JACOB BELL MEMORIAL SCHOLARSHIPS.

The President then announced that the Jacob Bell Memorial Scholarships for the Session had been awarded to Mr. William Henry Vernon and Mr. George Green.

The following were the questions for this examination:—

Hours—Four to Six p.m.

CHEMISTRY AND PHARMACY.

1. State the action of nitric, sulphuric, and hydrochloric acid upon metallic iron, and show the nature of the changes which occur by equations.

2. How would you make liquor potassæ and liquor plumbi subacetatis? By what methods would you determine the purity and strength of these two preparations?

3. Write the composition, in symbols, of sulphate of copper, sulphate of zinc, nitrate of lead, nitrate of mercury, red precipitate, and red lead.

4. Describe all the processes that you know by which oxygen may be prepared. State the properties of this element.

BOTANY.

5. Describe the following:—"Corm, bulb, rhizome, tuber, tubercle, perianth," and give examples in support of your definition.

6. Describe minutely the flowers of the common "buttercup, daisy, and crocus."

Hours—12 to 3 p.m.

LATIN.

1. Translate the following into English, and parse the concluding sentence of the quotation:—

"At domus interior gemitu miseroque tumultu
Miscetur; penitusque cæve plangoribus ædes
Femineis ululant: ferit aurea sidera clamor.
Tum pavidae tectis matres ingentibus errant.
Amplexæque tenent postes, atque oscula figunt.
Instat vi patria Pyrrhus; nec claustra, neque ipsi
Custodes sufferre valent."

2. Translate the following into English—

Resina flava aut ex flavo fusca, opaca aut diaphana, fragilis, in fractura nitens, manu tractata emollescens, odoris terebinthini, in spiritu fere tota solubilis.

ARITHMETIC.

3. Reduce to decimals $7\frac{75}{9}$ of $2\frac{1}{3}$ of $20\frac{2}{3}$ of 31.

4. Show that if $1\frac{1}{3}$, $2\frac{2}{3}$, $3\frac{3}{4}$, $4\frac{4}{5}$ be added together (1) as fractions, and (2) as decimals, the results coincide.

5. If 15 horses and 148 sheep can be kept 9 days for 75*l.* 15*s.*, what sum will keep 10 horses and 132 sheep for 8 days, supposing 5 horses to eat as much as 84 sheep?

English.

6. Write from 30 to 40 lines on the value or otherwise of competitive examinations.

French and German.*

7. Translate into English the following:—

“Vous fûtes spectateur de cette nuit dernière, Lorsque, pour seconder ses soins religieux, Le sénat a placé son père entre les dieux. De ce juste devoir sa piété contente

A fait place, seigneur, aux soins de son amante ; Et même en ce moment, sans qu'il m'en ait parlé, Il est dans le sénat, par son ordre assemblé.”

8. Render into good German the following sentences—

He has lived in the country. She has dwelt in town. It has rained all day. We have danced and you have laughed at it. They have had a good father, and have always loved him.

THE HILLS PRIZE.

The VICE-PRESIDENT (Mr. Alexander Bottle) said the Secretary had put into his hand a list of prizes which he probably thought the President would prefer not to read. It would be within the recollection of most of those present that a year or two ago Mr. Hills invested a certain sum of money as a fund out of which to present a prize to the best man at each of the Minor examinations, and though his well-known liberality was exceeded by his modesty, it was but right that the names of those who had obtained these prizes should be mentioned. They were as follows:—Frederick Hearne, James H. Spencer, Evan John Howell, Alfred Wood, James West Knights, Alfred Coleman, Edward R. Marsh, John Overton, Charles R. Riley, Jabez Abraham Jones.

When the various prizes and certificates had been bestowed, and friends had expressed their congratulations, Mr. R. W. Giles, of Clifton, proceeded to deliver his address.

He may be perfectly satisfied with the attention he commanded, and with the unstinted applause which he gained so frequently, and which he so well deserved.

“In the name of the School, and of the brotherhood of Pharmacy throughout the kingdom,” and in his own, he bid the students hearty welcome. He praised the educational resources of the establishment, and the accomplished teaching of the professors. Pharmacy had not always presented such advantages. The small capital supposed to be required tempted men of slender means; shops were numerous, and qualification at its lowest ebb. Latin was still ranked as an essential, and this slight line of demarcation separated the business from a purely non-scientific occupation. In those days pharmacy had no corporate existence; there was no school, no home, no conference. Yet there were giants in those days, too, and now, after a lapse of thirty years, they found themselves met together to forward the scheme of compulsory qualification as by law established, which was but the confirmation of antecedent voluntary regulations.

The political history of the Society was passed over, but a tribute of respect was paid to those who had inaugurated the movement, not forgetting the revered names of Pereira, Fownes, Thompson, and Redwood, the pioneers of pharmaceutical instruction. It was customary (observed the speaker) to depict in

glowing colours the attractions of science, but he would confine himself to things familiar, and not attempt to soar on borrowed wings. Pharmacy was a trade, charged with grave responsibilities, imposing a professional standard of ethics, but still a trade. The diffusion of a high educational tone would raise its status and place it in a position of respect. It had a wider scope than the duties of the shop, and the pharmacist must be prepared to share in the general advance of intellectual activity. He must be the coadjutor of the physician—skilled in the practical details of chemistry, whether applied to sanitary matters or to the usual branches of analytical research. Such are the prospects with which the learner entered upon systematic study. A preliminary examination had been passed as a condition precedent to apprenticeship, and a certain familiarity with drugs and chemicals had been obtained. Some, by self-teaching and by lectures, had extended this information, but to all the opening session offered its systematically progressive courses. Study should not be excessive—there should be a due admixture of recreation. Ten months was a short period in which to acquire sufficient proficiency in pharmaceutical science, and little status could be claimed on the score of as much knowledge as could be acquired in a period of six or three months' duration.

Then followed a vigorous denunciation of the art of cramming, which was held up to profound and continuous reprobation. Misguided youths conspired by means most unworthy to elude the penetration of their examiners. Short terms of study were totally inadequate “for the preparation which pharmacy required of its disciples,” and utterly insufficient to afford that amount of qualification which public opinion demanded. Cramming ran through every branch of our educational system; it was patent in the United Service, in public offices, and in our great universities. Dr. Varnish would *prepare* and qualify for every known department; vile expedients were used to stimulate defective memory, and the rage for examinations had led to distressing consequences. Mr. Giles besought his hearers to recollect one golden motto, *LABOR omnia vincit*. “The obvious remedy was the establishment of a compulsory curriculum of education at recognised schools as a condition of examination.” He confessed his deliberate conviction that such a compulsory curriculum must sooner or later be adopted, and that if “cram” hastened the desired result that evil would prove a blessing in disguise. The address concluded with an earnest exhortation to qualify for the highest grade of pharmacy—nothing short of the major title should suffice—even in the lowest view of worldly prospect it would be a blunder to rest satisfied without its attainment. The lecturer had faith in honest painstaking mediocrity; those who could set the Thames on fire did not constitute the average of mankind—*arma virumque cano*, sang the poet: so he would sing, not of heroes, but of a man equipped for the great battle of life that lay before him. A few passing sentences on lady students, and a well-merited encomium on the President, Mr. T. H. Hills, brought the address to a conclusion.

Dr. Greenhow proposed a cordial vote of thanks to the lecturer, and complimented him on the execution of his task. He also expressed his satisfaction in the new system of examination about to be adopted. It was an error to suppose that the regulations were made more stringent, they were simply more practical in their bearing.

Mr. Giles briefly acknowledged the honour, and mentioned that the delivery of his address was coincident with his retirement from pharmacy, and he was glad that his last public act in connection with the Society should have such pleasant recollections.

If we were to venture a literary opinion, we should praise the extreme cleverness of this essay. The river sentence was particularly neat, and Mr. Giles was happiest when describing mediocrity—a virtue with which personally he is unacquainted.

* The candidate is at liberty to choose French or German. He is not required to show a knowledge of both.

Once more the seven vials of wrathful indignation have been poured out on "cram," and the subject is thus directly forced upon consideration. Were we to epitomise the effect produced by this part of the discourse, we would say that it left an impression of the supreme dexterity of the *preparer*, and a marked want of intelligence on the part of the examiner. The latter must be singularly deficient in perceptive power if he allows himself to be visibly deceived to the extent here suggested. Canon Barry, at King's College, clearly put the matter. So long as qualification depends on examination, so long "cramming" cannot be utterly abolished: on the other hand, when an instructor prepares a candidate in such a manner as that on every point, and in every way, he satisfies the conscience and the technical requirements of his examiner, the title of crammer may safely be withdrawn. Mr. Giles is the last man to object to criticism when offered in no captious spirit and with unfeigned respect.

The argument with respect to meretricious study was open to a misapprehension. Because a three or five months' course of training is not sufficient for a complete pharmaceutical education, it does not follow that it is therefore insufficient for a definite preliminary section of the same. We hold that a man who has ordinary knowledge of the principles of pharmacy, and who after three or four months' systematic teaching contrives to pass his Minor, has done no more than might be reasonably expected from his antecedents. He may be, and very likely is, a humble-minded and conscientious student, to whom a successful examination has proved an event which need excite no surprise, and which has happened in the common course of things.

Should he, however, accept the acquisition of that degree of information as the ultimate standard of his ambition, and content with a legal permit for his trade, abandon further intellectual effort, he will be miserably disappointed. He will have mistaken the scaffolding for the building, and the framework for the superstructure.

Nevertheless, such knowledge in itself is both desirable and good, and need not be charged as cramming or stigmatised as superficial. If, with this preparation, a man sets up for Faraday, and assumes the position of philosopher, that will prove his shallowness but not the futility of his *then* attainments.

We have faith in the new generation, and we believe that their conduct and their sense of honour will disarm the fears that have been entertained on their behalf. We feel satisfied that their interest, as well as their English honesty of purpose, will lead them to reject questionable methods of advancement; and that the love of learning for its own sake will distinguish the members of our trade-profession. Public opinion and self-esteem will more effectually annihilate the crammer's art than declamations against its manifold abuses.

We observe also that the Board of Examiners are alive to the situation, and have reduced the chance of mere book preparation to a minimum. When, after 1877, the full regulations become effective, and when no candidate can appear without a certificate of three years' practical pharmaceutical employment, the disastrous consequences of cram will cease to excite apprehension.

The grand fault lies in a confusion somewhat natural on the students' part between the terms examination and education.

Time works wonders—time will put this right; and when the sudden pressure of compulsory qualification ceases to exert undue influence many disturbing elements will subside.

Never could these remarks be made under happier auspices.

The School of Pharmacy is moving in a right direction—it will move all the faster when the Council pass a bye-law that no paid officer on its staff shall be allowed to give cramming lessons in his after hours. The admirable South London School at Kennington has thrown its energy into the work of advancing sound practical learning, and has set its face against knowledge falsely so called. Other educational bodies in

London and the country set the same example, while there are some dismal and contemptible exceptions.

What lesson shall we draw from the opening of the session, and from the various inaugural addresses with which the public journals have been lately filled? All point to one conclusion, the advantage of well-applied and systematic study. Labour, repeated Mr. Giles emphatically in one of his paragraphs—labour conquers all things. But labour without system is power shorn of half its strength; we want both to be united.

J. I.

HOW TO STUDY PHARMACY.

By MR. RICHARD WILLIAM GILES (Clifton).

Being the annual inaugural address to the students of the School of Pharmacy (Bloomsbury Square), delivered on Wednesday Evening, October 7, 1874.

GENTLEMEN,—Students of the Pharmaceutical Society's School of Pharmacy,—

My first pleasing duty is to bid you heartily welcome to these Halls. Welcome in the name of the School of the Society and of the brotherhood of pharmacy throughout the kingdom, who look to you, and to those who may come after you with like aspirations, to take up and to carry on the work in which they are now engaged, to sustain the edifice which they have laboured to construct, to advance the standard of English pharmacy, and to bear it to the front in friendly emulation with the civilised nations of the world. But better welcome than words can give may be read in the ample provision here made for your guidance in those studies which are the foundation of scientific pharmacy. You have but to survey the museum, the library, the lecture-room (in which we are now assembled), and the laboratories of this institution, to see what infinite pains, what generous expenditure, what practised experience have been bestowed to make your welcome complete. You have yet to learn what accomplished teaching animates the whole, and to experience the kindly co-operation of the professors, which I undertake to assure you will not fail those who diligently follow the course of instruction marked out for them. These preparations are all for you, and the only return desired is that you shall so employ them that they may contribute to your own happiness, honour, and prosperity. The constant aim of this Society, the single purpose of its School, the only use of these sessional addresses (if, indeed, they may aspire to any usefulness), is to promote pharmaceutical education, and thereby to increase the welfare of the pharmacist, and to give improved accommodation to the public.

It was not always so. There were dark days before the Pharmaceutical Society rose to be a power. It may encourage you to appreciate the opportunities which you enjoy, and stimulate you to make good use of them, if I briefly compare the conditions of a few years ago with the circumstances of the present time. Pharmacy had probably sunk to its lowest point of degradation; its professors were commonly wanting in the training necessary for conducting it scientifically; an opinion (still unfortunately prevalent) that a smaller capital sufficed to establish a chemist's shop than was required for the stock of other trades, attracted men of small means; and, so far as my observation allows me to judge, the quality of the chemists of that day was inferior to that of those who preceded them; the shops were more numerous and less important, and the business was done upon a less liberal scale. Happily *Latin* was popularly supposed to be indispensable, and although the quantity was usually homoeopathic and the quality "canine," this superstition was the sole foundation upon which pharmacy could rest its claim to a status above the unscientific trades, and should accordingly have secured for itself our respect and veneration. It was an ungrateful return for this good service that the first Pharmacopœia in the compilation of which the pharmaceutical body were officially represented should have proved the occasion for abandoning the Latin text for the vulgar tongue; but in the meantime our classical pretensions had been preserved by the institution of the Preliminary examination.

In those days pharmacy had no corporate existence; its members were not characterised by gregarious instincts; they might properly have been described as solitary and sedentary; they had no central home, no wandering conference; there was no school where the art and mystery of pharmacy was scientific.

cally and systematically taught; there was no pharmaceutical literature, there was no demand for any; each man worked out the narrow problem of his life beneath his own peculiar vine and fig-tree, and left his neighbour to do the like.

Yet this period of deep depression could produce such men as Allen, Bell, Paine, Morson, Deane, Savory, Squire, and others of whose names we may be justly proud. Where there is a will there will always be found a way, and it would be impossible to refer you to a more pleasing illustration of this good old proverb than the autobiography of the late lamented Henry Deane. Truly there were giants in those days, but the average stature was the measure of a dwarf. It is not, therefore, wonderful if the general body of chemists and druggists failed to commend themselves to the confidence of the medical profession; they also failed to impress the public with any exalted respect for their attainments. The natural consequence was, that they held a precarious position, and were in chronic fear of hostile legislation. A panic, produced by an accidental aggravation of this state of apprehension, led to the establishment of the Pharmaceutical Society, and now, after a period of thirty years, we are met to-night to carry out that system of compulsory qualification (the bugbear of my youth) which has been brought into operation mainly by the instrumentality of the Society which at first sight seemed intended to thwart it. We may truly say, "*Tempora mutantur:* " may we not thankfully add, "*Nos mutamur ab illis!*"

It would be foreign to our business this evening to follow minutely the political history of the Pharmaceutical Society—it suffice it to say that it is the history of the progress of English pharmacy in its era of greatest activity; but I am sure that you will bear with me while I pay a just tribute of gratitude to the clear-sightedness of the distinguished men who led that important movement, and who had the sagacity and elevation of mind to make education the basis of their association. They had the wisdom of unselfishness, and instinctively perceived that stability might be given to a temporary combination by identifying it with a scheme of permanent public utility. In the natural course of events there are but few of them who now remain to us, but amongst the many treasures of this institution there are none more cherished than the life-like portraits of those worthy founders of scientific pharmacy in England, whose names are hallowed memories to us, and will long survive as household words familiar to those by whom we, in our turn, shall be succeeded.

But I must not grow garrulous over reminiscences of the past, forgetting that you are young and that your interest is in the future, while it is many years since I sat where you now sit, when these memories were passing events. But for this I would fain dwell a little longer upon the school as I then knew it, upon the many valued friendships which date from that well-remembered session, and the professors whom I learnt to revere so truly—Fownes, Pereira, Thompson, Redwood! It is no small honour to our Society to be able to connect its traditions with these distinguished names; it was a priceless advantage to its early growth to have had such men associated with it. It is time, however, to turn from these retrospects to more practical concerns, and to consider how I may best interest you in the work that lies before you, and how I may encourage you to make profitable use of the coming session, in which you doubtless hope to complete your technical training, and to accomplish your preparation for a life of honourable duty.

It is customary upon occasions similar to the present for the speaker to depict in glowing colours the attractions of science, and to expatiate upon the exalted pleasures which reward those who penetrate into the ever-varied wonders of nature, and by diligent observation of phenomena, which to indifferent observers appear incongruous or contradictory, to resolve them (as the tendency of all scientific research is) into common laws of simple harmony. No loftier exercise of the intellect can be imagined than this; it raises humanity to the highest eminence to which it can attain—the appreciation, namely, of the works of God, and of the unity and beneficence which His works unfold. By such example the student is appropriately exhorted to enrich his mind also with the knowledge which these pioneers of science have accumulated for the common good.

Such language would of right belong to one who had traversed the wide domains of science and drank deeply of its ennobling springs, or, more distinguished still, had extended its domains in paths peculiarly his own. He alone could touch with magic power those sympathies within you which no weak echoes of his nobler strain may hope to stir. But candour compels me to

confess that I have not trodden these sublime heights, and I stand abashed at the presumption of attempting to portray them. I dare not soar with borrowed wings, but rather will I invite you to wander with me in the lowly plains, talking at ease of things familiar, and hoping that even so you may find encouragement to do with all your heart the work to which your hand is set.

First, then, let us make sure that you rightly understand the objects for which you are here. I take it for granted that it is your intention to make pharmacy your vocation, and that you will be willing to devote a few moments to the consideration of its character and scope before we go on to speak of the scientific education which is a necessary part of its preliminary training.

Pharmacy is a trade. This was well and honestly said by Mr. Ince, at Nottingham. Pharmacy is a trade—more momentous than other trades—charged with graver responsibilities—demanding a higher morality, and qualifications similar to, if not absolutely identical with, those which belong to the professions—but still a trade; and it will be well for the comfort of those who propose to follow it that they should learn from the first to accept it on these terms. In spite of sentimental yearnings after the dubious status of a profession, it is satisfactory to know that men who have been the brightest ornaments and the most eminent representatives of pharmacy have frankly accepted this position, and we may do the like without compromising our dignity or proving recreant to our order. The responsible nature of our business imposes upon us a professional standard of ethics, and it follows that this demands a corresponding elevation of status; but it would expose us to merited derision if we sought to invert the natural order by which these results are attained. The status of pharmacy will be best raised by the diffusion of a higher educational tone amongst us, which must, in the end, command respect.

Again, pharmacy has a scope wider than the duties of the shop, though even these should be extended beyond their customary restricted range; it makes visible pretensions to the sciences of chemistry and botany, and must be gauged by its fulfilment of these pretensions. Although of late years we have made some progress, we have not done more than keep abreast of the age, which has equally awakened to the importance of scientific knowledge. It now forms part of the curriculum of all good schools, and is the most characteristic feature of the educational activity of the present era. As the results of this change become developed, we may anticipate that every well-educated Englishman will possess at least an elementary knowledge of the physical sciences; and a relative proficiency in those sciences which are allied to your calling will be required of you. The pharmacist of the future will be expected to know and to be able to assist others in exploring the flora and geology of his neighbourhood, and generally to take part in its local scientific associations. He will no longer be able to assume a virtue if he has it not, for his pretensions will be seen through and derided. He will be forced up (or trodden down) by the pressure of the crowd. He must be competent to act as the intelligent coadjutor of the physician, assisting him in investigations demanding the application of chemistry, which is his legitimate department. He will frequently be consulted upon questions relating to the chemistry of common life: in sanitary matters, such, for example, as the chemistry of disinfectants, he is the natural adviser of the medical profession and of the public. Minor analyses will be brought to him, which would probably not find their way to the public analyst, while this appointment is itself open to him if sufficiently qualified; and I hold that under a satisfactory condition of pharmacy it would be for the public convenience, as well as for our credit and advantage, that it should generally be filled by a pharmaceutical chemist. There are already instances in which it is honourably held by members of our body, notably in my own city. Such are some of the considerations which challenge your attention at the time when you are about to qualify yourselves—not for the pharmacy of the past, but for the advancing pharmacy of the future. It seems probable that greater changes are impending than we have yet seen, and you will do well to lay your foundations wide and deep in preparation for the superstructure, whose exact form and dimensions you cannot with certainty foresee.

With these prospects before you, you are about to enter upon a short course of systematic study—so short, that without the previous preparation which this school, in common with every advanced school, presupposes, it would be altogether insufficient,

and, under the most advantageous conditions, it can only be regarded as a bare minimum. It is understood that you have passed a satisfactory Preliminary examination in the usual school subjects, that you, therefore, possess an average degree of intelligence, and have learned how to learn by the mental discipline inculcated at some good school. The test of the Preliminary examination is as indulgent as the case permits, perhaps too lenient; but it is to be hoped that the Society will be enabled before long to delegate this office entirely to such hands as will give assurance of efficiency; for it is obvious that the subjects of the Preliminary examination are no part of the curriculum of a pharmaceutical education, but that it is an ordeal to be passed as a condition precedent to apprenticeship. It is further assumed that you have spent an apprenticeship, or at least some considerable part of it, in a pharmacy where you have already become familiar with the drugs, chemicals, and preparations ordinarily employed in medicine, that you know their physical characters, and have some general acquaintance with their properties and behaviour, *e.g.*, as to solubility, crystallisability, &c., and that you have learnt the official names, which, more or less, accurately indicate their chemical constitution and natural relations. In all probability most of you have extended this information, acquired in the routine of shop duties, by some amount of study in the way of scientific reading and attendance at lectures. In fact, you have made with little effort considerable progress in the vocabulary of chemistry and botany, but you want the grammar which shall consolidate these disconnected words into a living language. If you have come here, as I trust you have, honestly bent upon learning your grammar like good boys, that you may speak hereafter like wise men, I venture to promise that you shall not go away disappointed. I hope that you will make this session memorable by your attention to its duties, that you will be constant in attendance at lecture, never permitting yourselves to miss a single one, for it breaks the thread and interrupts the continuity (as I know by bitter experience, for did I not miss one myself?), that you will work diligently in the laboratory, following the course which is as systematically progressive as the courses of lectures, and that you will not fail to supplement these recreations—for such you will find them—by steady reading at home in connection with the subjects of the day. I beseech you not to neglect this last exercise, for you can never read to so much profit as when the subject is vividly impressed upon your senses by the tangible operations of the day, and when it is presented to your apprehension in its proper order of sequence.

I would not be the one to press study upon you to an excessive extent, for I believe there is true wisdom in the homely saying that "All work and no play makes Jack a dull boy;" but it is equally true that there is a time for all things, and this is pre-eminently your time to study, for in all probability it is the golden opportunity which will never return to you again. Ten months, as I have said, is a very short period in which to acquire that moderate amount of proficiency in pharmaceutical science absolutely necessary to enable you to make a respectable figure in after-life. If any one amongst you thinks differently, let him reflect how grievously he would depreciate the dignity of pharmacy, which it should be our aim to exalt. What status could we dare to claim on the score of so much scientific education as it would be possible to compress into a period of six—or would you say three months? Every good thing is worth its price, and none may hope to win the laurel without the dust of the strife.

But this is not strictly true; there are, alas! those who do this, who aspire to the laurel without braving the dangers of the fight, and, unfortunately, they do often succeed in carrying off some dead leaves, which they wear with the complacency of conquerors. You will be at no loss to understand that I speak of those misguided youths—students we cannot call them—who give themselves up to the manipulations of the professed "crammer," and conspire by means most unworthy to elude the penetration of the examiners, and to obtain a certificate of qualifications which they know full well they do not possess. The object of examinations is to exclude the unqualified; the scarcely disguised object of "cram" is to pass the unqualified through. Whether at our own school, or elsewhere, a term of one, two, or three months is totally inadequate for the preparation which pharmacy requires of its disciples, and utterly insufficient to afford that amount of qualification which public opinion demands. Every school is, of course, subject to be abused by candidates who, caring only for the specious pretensions of a certificate, enter for these short periods, and it is only

when the school wilfully lends itself to the abuse that it can fairly be held responsible. The cramming system does this, and is working so much mischief to *bona fide* education that it is the bounden duty of all honest men to unite in stamping it out. Its operations are widespread; wherever examinations prevail (and where do they not?) this noxious parasite springs up and poisons the air. In the universities, the professional colleges, the army, the navy, the civil service—everywhere the evil is rampant and, it must be admitted, triumphant; and everywhere the wail of examiners, cheated with open eyes, goes up. To show that our examiners are not more easily imposed upon than others, I will read a short extract from an article upon "cramming" in a popular periodical:—

"The disgusted examiner gradually recognises that he is not conversing with George Griffin, jun., but with Dr. Varnish, M.A., &c., who speaks all languages, knows something of everything, and is growing rich apace by preparing young gentlemen for the civil and military service of their country. Mr. Griffin is there in the body, certainly, with pink ears and heated forehead, and his preceptor is as undoubtedly absent; but nevertheless the examiner cannot but feel that all his efforts are as thoroughly baffled as if the young man wore a medium, and Dr. Varnish held him under some as yet unknown mesmeric influence. There is no getting at the lad's real brain, no finding out what he will be when, at no distant date, he shall have forgotten Varnish and all his works. As it is, that subtle instructor of youth has armed him at all points; he is a pattern pupil, and has absorbed exactly such information, and no more, as will help him through the ordeal before him. If caught tripping on one subject, he is comfortably bolstered up on all the rest, and as the defeated examiner grudgingly sends in his name at the top of the list, he is forced to acknowledge with a sigh that Varnish is a very clever fellow."

This graphic sketch conveys the painful impression that the newly-developed idea of universal examinations, which was doubtless expected to give encouragement to education, has had a contrary effect; that it has diverted attention from education to fix it upon examination—that it has overwhelmed the substance in its own shadow, and invested the shadow with the semblance of reality. The pharmaceutical crammer is equal to the occasion; he tempts unwary youths (ignorant, let us hope, of the full extent of the deception in which they are about to take part) with the flattering assurance that he will qualify them for the examinations in five weeks! and forthwith commences a digested course of unmeaning jargon, of which, I am told, the following is a specimen, "Three—one—five—, catch 'em alive; one—two—three, out goes she!" and this, by some inscrutable property of association, is said to enable the candidate for pharmaceutical honours to remember (till next examination day) the respective constitution of carbonate of magnesia and carbonate of zinc! but for all useful purposes, for all that makes knowledge convertible into power to be utilised in after-life, he is as ignorant as he was before.

Lest you should ever be tempted to avail yourselves of these meretricious devices, and to wander from the rugged track which leads to knowledge in pursuit of some softer, enervating road, I will furnish you with a talisman of power, if you will only trust to it. I pray you in your hour of weakness to remember—and not to pervert—the old, the wise, the maufaul maxim, "LABOR omnia vincit."

It is told of a Bristol worthy, that he was one day found seated in a well-stored library, deep in perusal of a book, and being complimented by his visitor upon this evidence of tastes not previously suspected, he is said to have replied in reproachful accents, "Yes, Mr. D., here I sits all the day, and I reads and I reads, *but nobody is any the wiser.*" If nobody was any the wiser, we may at least hope that nobody was any the worse, which is more than can be said for the votary of "cram." He is none the wiser for a miserable mockery of education, but he is the worse for the fraud in which he has been an accomplice, for the dishonour which he does to his profession, and for the deception of a career based upon false pretences.

Some hope may be derived from an explanation which is at least plausible of the present excessive development of pharmaceutical "cram;" it might have been foreseen that the substitution of compulsory qualification for voluntary would create a panic amongst those who had committed themselves to the vocation of pharmacy without sufficiently counting the costs. In spite of frequent warnings and repeated opportunities of grace, many young men now find themselves in this false position, and are dismayed at the prospect of examinations

which they would not allow themselves to be persuaded would become obligatory upon them. They feel that they are not prepared to pass legitimately, and they jump at any help that offers without criticising it too closely, like drowning men catching at straws. If this be a just interpretation of the present unsatisfactory aspect of pharmaceutical education which embarrasses our examiners and disheartens our professors, we may hope that the magnitude of the evil at least is temporary, and will die out when the present crisis is passed; but if this hopeful anticipation should not be realised, strong measures must be taken to put it down. We cannot afford to sacrifice the labours of thirty years to an ugly fetish, nor will we consent to do it. The obvious remedy is the establishment of a compulsory curriculum of education at recognised schools as a condition of examination. The principle is generally adopted elsewhere, it prevails at the old universities, at the medical schools, at the more recently established Veterinary College, and in the Continental schools of pharmacy; and there is no feature of our system which our Continental brethren view with so much disapproval (not to say contempt), or regard as such a fatal blot upon its efficiency, as the absence of a prescribed course of study. I cordially agree with them, and speaking here without official reserve, and without the fear of implicating the higher powers (I may also say, without much fear of offending them), I express my deliberate conviction that a compulsory curriculum must sooner or later be adopted, and the sooner the better. This, and this only, will solve the difficulties of what we have been pleased to call "provincial pharmaceutical education," but which should be more broadly spoken of as "national pharmaceutical education," without distinction of place; and it may even turn out that "cram," over which we now groan, may prove to be a blessing in disguise by hastening this consummation so devoutly to be wished.

It may seem to you that I have wasted a good deal of virtuous indignation, that this outcry against "cram" may be very just, but it is out of place upon the present occasion, and you may be disposed to resent the application of such a homily to you. My young friends, I am not sure that you are all as virtuous as you look, though I sincerely hope that your "ingenuous countenances" do not belie you. There are degrees in "cram," and, though I may not suspect you of its bare-faced enormity, you may perchance be tainted with its vices in some milder degree. I ask you, then, pointedly—What brought you here? Did you come impelled by an Englishman's sense of duty, by the honest desire to qualify yourselves for your future life, to do that which lies before you in a manful and exemplary manner,—and in due time to submit the validity of your qualification to the test of fair examination? Did you so? If you can answer this home question with a loyal "Aye"! then I am authorised in the name of this institution to bid you the heartiest God-speed, to lead you to its most favoured seat, and to promise you abundant success; but anything short of this is a step on the road to "cram." If you come here making the examinations the first object of your heart's desire, and the pursuit of knowledge subordinate to that low end—then I am constrained to warn you that you cherish a mischievous delusion which is parent of "cram." You confound the shadow with the substance, and "will come to fight with shadows and to fall," in your own esteem and in the opinion of others.

It is my duty to urge you, with all the cogency which I can command, to qualify for the highest grade in pharmacy; to be satisfied with nothing short of the Major qualification, which I unhesitatingly assert is fairly within reach of all who make proper use of the opportunities of this school. It may be that the Major qualification is not absolutely imperative, that the Pharmacy Act recognises the inferior grade, and confers upon it equal trading privileges; and if your ambition was limited by Act of Parliament you might contend that the Minor qualification accomplished all your wishes. But this is not the language we hope for from you. To whom can we look if not to the pupils of our own School to uphold the highest standard of pharmaceutical education? The Minor qualification may suffice for some—it is no fit goal for you; and I have addressed you to little purpose if your aspirations soar no higher. Let me once again entreat you to seek knowledge for its own sake; it will beautify that which would otherwise be mere drudgery; it will invest your daily avocations with a new meaning, and will enable you to restore to pharmacy those interesting processes which a former era relegated to alien hands, while it retained only that which was monotonous. Even in the lowest view of your worldly prospects, it would be a blunder to forego the higher

qualification. Nothing is more likely than that your advancement in life may be determined by the nature of the qualification you can claim, and you may hereafter bitterly lament your unwisdom if you do not avail yourselves of the present opportunity.

Let me exhort you to place confidence in yourselves, though you may be conscious that your abilities are not remarkable. The practice of holding up exceptional talent for general imitation is not only unfair, but demoralising in its effect, and I will not follow it. I have the highest respect for honest painstaking mediocrity, and believe that we need covet nothing to which it cannot attain. "Arma virumque," sang the poet of old, and I too will sing not of *heroes* but a *man* equipped—equipped with such weapons as this school and his own manhood can furnish; arms of proof for the battle of life—not the tinsel weapons forged only to glitter in a fancy skirmish with examiners. Be of good courage, my young friends, and take comfort from the reflection that the best, if not most brilliant, part of the world's work is done, and done well, by respectable mediocrity; and in all probability the greatest happiness as well as the greatest usefulness is achieved by those who may safely be trusted with lucifer matches on the banks of the Thames.

I may not pass over, though I can only briefly touch upon, one other topic of the hour in which your subordination as students, and your behaviour as gentlemen, is concerned. I refer to the admission of lady-students to the lecture classes of this school. It is not my business in this address, still less does it become you, to question the policy by which the internal administration of the Pharmaceutical Society is governed. Your duty is to respect the regulations which you find in force; and if it were not that ill-advised demonstrations have been made elsewhere it might not seem necessary to allude to so small a matter. If I were to express an opinion upon the general question, it would probably be that, if the ladies were allowed to have their own way in this as they are in most other matters, the present "Tempest" in the pharmaceutical teapot would prove to be a veritable "Much Ado about Nothing;" and I, for one, can neither fear nor hope that any concessions which we may make will realise the poet's dream—

Pretty were the sight
If our old halls should change their sex and flaunt
With prudes for proctors, dowagers for deans,
And sweet girl graduates in their golden hair.

As it is, I have but to ask you to behave towards the lady-students whom you may meet here during the session with the respectful courtesy which characterises the conduct of a gentleman to a lady under all circumstances. The position of the lady-students is somewhat novel, and (connected with recent events) will excuse me for cautioning them that the assertion of "equal rights" is inconsistent with claims for special privileges, and they must be prepared to defer to the same discipline as other students, and to accept, without contention, the examiners' estimate of their qualifications.

Gentlemen, I have now brought my "rustic oration" to a close. It has so far outgrown my intentions that I will not further abuse your patience by a formal peroration. I will, however, make one personal appeal to your generous impulses. The past presidents of the Pharmaceutical Society have always been men of eminent position, and have usually brought some special qualification for their important office. The president of the present time is the most popular of pharmacutists, as repeated council elections have testified. I need not remind you that an enduring popularity is not the result of accident. Mr. Hills owes the affectionate esteem with which he is regarded to a large-hearted liberality which is part of his nature, and which we will not stop to praise; but his special characteristic is the deep and sustained interest which he has ever taken in pharmaceutical education and the welfare of pharmaceutical students. It is in your power to render him the most appropriate return by making his term of office distinguished by the success of this central school of pharmacy. You can strengthen the traditions of the school, and impress the mark of your diligence upon its work, to be a model for those who come after. Thus, early in your career you may do something for pharmacy, and I feel sure that you *will* do it.

I now commend you to the experienced guidance of your professors, with warmest good wishes for your success here, and for the welfare, happiness, and prosperity of your future lives.

Gentlemen—farewell to-night! but we look to hear of you again.



GERMANY.

(FROM OUR OWN CORRESPONDENT.)

BERLIN, Sept. 30, 1874.

The general assembly of the German Apotheker-Verein has been held in Munich. Various journals have gone into somewhat too late ecstasies over what they regard as the union of the pharmacutists of North and South Germany, considering this meeting to be the fraternal kiss confirming the alliance. The truth is, as I have before pointed out in your journal, this alliance was effected more than two years ago, and the only novelty now is that the Association is held for the first time in the Bavarian capital.

Apart from the affairs of the Association itself, there is but little this year to report. In consequence of the limited time, only a very few scientific papers could be read, and the time was the more limited through the attractions which the city offered, banquets, &c. Among the latter, the most remarkable was the "Cellar-feast," given by the pharmacutists of Munich, and which, notwithstanding wretched weather, was attended by 300 chemists. A theatrical scene was performed, called the "Children of Munich," in which an immense beer barrel was rolled on to the stage, and immediately came a crowd of pretty Munich cellarmaids in ancient costume, followed by a number of blooming flower-girls, and the procession ending with some old radish-women. All these marched round the hall, handing in turns to the guests, beer, flowers, radishes and bread.

* *

The petition to the Diet, which I alluded to in my last letter, urging that lectures on Pharmacy should be established at all the German universities, was signed by 225 physicians. These represent almost the entire body of German medicine. The physicians remark that in their opinion "a sound knowledge of pharmacy is of the highest importance both to the physician and to the pharmacist." The petition has only been brought before the most distinguished members of the body, and has only circulated in seventeen university towns. Among the signatures are those of 125 professors of medicine.

* *

The Berlin Pharmaceutical Society, at its September meeting, occupied itself with the subject of dry narcotic extracts. It is to be understood that in Germany narcotic extracts, when prescribed in the form of powder, are to be mixed with an equal quantity of dextrine and dried. Then it is ordered that they are to be kept in glass bottles, with cork stoppers. It was pointed out that it is especially important that the extracts shall be reduced to the most perfect dryness.

The next subject brought forward was the testing of iodide of potassium for bromide and *vice versa*.

Lastly, a discussion occurred on the causes of the great increase in price of citron and bergamot oils. It was stated that in Sicily the trees are suffering from a disease which has occasioned enormous injury, and that the government has appointed a commission to obtain information respecting it on the spot. In the report of this commission the disease is traced to a too abundant watering and manuring of the trees, by which means the yield of fruit has been increased at the expense of the health of the trees. The matter has been serious for some years past, but until now nothing has been done to enquire into the subject.

In the year 1868 I spent a considerable time in Sicily. This subject was mentioned to me by our consul, and with the aid of a microscope which was at hand we observed very distinctly a fungus on the bark of the tree. When I returned to Germany

I obtained, through the agency of an English house, some specimens of the roots and barks of diseased trees. Professor de Berg (now of Strasburg), to whom I took these specimens, observed the fungus at once, but up to the present time no means of removing it has been discovered. Two years after I had occasion to notice exactly the same appearance on some beet-roots. In this case the occasion was similar too; namely, too strong artificial manure, wet weather, and no cessation of the regular crop. The form of the fungus was almost exactly the same. Even the sugar obtained from this beet showed streaks of mould. During the last few years, however, the appearance has entirely disappeared.

* *

Reports upon the pharmaceutical commission enquiry are now about to appear. Dr. Hartmann gave no report at Munich, but it is understood that during October he will supply the conclusions arrived at by the commission to the pharmaceutical journals if he is permitted. I may, however, remark that those members of the commission who did not vote for free trade find themselves puzzled, when asked to render an account of their action, to give sufficient reasons for their omission to support the proposal for free trade when it was made. They refuse to answer. The government officials evinced the strongest desire that the election should represent both sides in the controversy.

* *

A new method of administering certain medicines has been recently introduced into Germany under the title of "pressed tablets." Bulky powders are compressed into a small compass and are thus very easily swallowed. The tablets are sometimes covered with gelatine, which, it is said, is effectual in preserving them for a long time. I will give you further particulars respecting these when I have had personal experience of their usefulness.

AMERICAN PHARMACEUTICAL ASSOCIATION.

(FROM OUR OWN CORRESPONDENT.)

The twenty-second annual meeting was held in Louisville, Ky., September 8 to 11, holding six sessions. Nearly one hundred members were in attendance, a large majority of these having come from the seaboard States north of Maryland. About thirty came in a party from Baltimore and places north of that city, having arranged a pleasant excursion party.

After the opening of the meeting the usual business was transacted relating to the organisation of the body, the remainder of the first session being taken up by the reading of the reports of the Executive Committee, Permanent Secretary, and Annual Address of the President, John F. Hancock.

At the opening of the second session the nomination of officers and committees was announced, and an election held, the result being the selection of Prof. C. Lewis Diehl, of Louisville, Ky., as President; Joseph Roberts, of Baltimore, Md., W. T. Wentzell, of San Francisco, and A. R. Bayley, of Boston, Mass., as Vice-Presidents; while our genial Treasurer, C. A. Tufts, of Dover, N. H., and most efficient Secretary, Prof. J. M. Maisch, were, of course, re-elected. Committees were also elected to report on the Drug Market, on Adulteration and Sophistication, on Papers and Queries, on Legislation; Executive Committee, Committee on Photographic Album; and the Permanent Committee on the U.S. Pharmacopœia had its numbers enlarged.

After the newly-elected officers had taken their places, business was resumed, and the report of the Treasurer read, which informed the members that the finances were in a fair state with a respectable balance in hand, but regretted that quite a large number of members had allowed their dues to accumulate so that they would be obliged to drop them unless paid within a short time.

The report of the Committee on the Drug Market was presented by its chairman, P. W. Bedford; copious extracts noting the fluctuations, supply, and character of the drug market were read. The report of the Committee on Adulterations and Sophistications was presented, and, in the absence of its chairman, Charles Rice, was read by Mr. G. Ramsperger.

The report on Legislation was read by its chairman, Prof. Maisch.

A committee, to whom was referred such portions of the reports of the Executive Committee and Permanent Secretary and the Address of the President as required any action, reported the following for adoption.

Resolved, That the officers of this Association be empowered to enter into correspondence with any international body that may have been created for the purpose of attempting a unification of the plan upon which the different Pharmacopœias have been constructed.

Resolved, That the Executive Committee, with the approval of the President and Treasurer, be empowered to publish annually with the proceedings the likeness of one or more of our departed members, and that for the forthcoming volume our lamented friend, Professor William Proctor, jun., be selected.

Resolved, That a Committee of three be appointed by the President to report at our next meeting upon the feasibility of the publication of a table of maximum doses, and to devise a plan by means of which physicians can distinctly indicate unusually large doses in their prescriptions.

Resolved, That a Committee of three be appointed by the President to report at our next annual meeting upon the suggestion of our late President in reference to furnishing copies of Papers read at our meetings to pharmaceutical journals in advance of their publication in the proceedings.

Resolved, That the members of this Association be earnestly requested to call the attention of their neighbouring pharmacists to the aims and objects of the Association, and use strenuous efforts to induce them to become members.

The resolutions were adopted, and the President appointed as the Committee on table of maximum doses—William Saunders, Louis Dohme, Dr. W. H. Pile; on publication of Papers—A. W. Miller, J. F. Hancock, O. Eberbach.

The Committee on Papers and Queries reported, and at their request the reading of Papers was begun. In all, twenty-five of the Papers accepted last year were responded to, and seven volunteer Papers were presented, read, and accepted.

Professor J. LAWRENCE SMITH, at the opening of the fourth session, made an appeal to the pharmacists to contribute toward the fund to erect a memorial to Liebig at Giessen. Subsequently Messrs. Balluff, Hancock and Ebert were appointed a committee to solicit funds in behalf of this object.

The remaining portion of this session was devoted to the reading of scientific Papers.

At the fifth session Mr. WILLIAM SAUNDERS presented the following resolutions, which were unanimously adopted:—

Resolved, That in view of the great loss which this Association has sustained in the death of one of its founders, Professor Wm. Proctor, of Philadelphia, we desire now to express and place on record our heartfelt sorrow at this sad event, which has deprived us of the presence and valued counsels of one of our best beloved members; and while recognising with tenderest memory his great worth and lifelong labours in the interests of pharmacy, wish by this resolution to render a spontaneous and grateful tribute to one who has ever been ready to lend a helping hand in every good work, and whose genial social qualities and unvarying kindness to any who needed help, as well as his great scientific attainments, had endeared him to us all; and while fondly cherishing his memory, would convey our tenderest sympathies to his bereaved family.

Resolved, That this resolution be published in the next volume of the proceedings, and that the Secretary be requested to transmit a copy to his family, signed by the officers of the Association.

The subject of the next place of meeting was now taken up; the Committee on this reported in favour of Boston, and although some urged that we go to Toronto, the meeting, by a large majority, voted that the next annual meeting be held in Boston on Tuesday, September 7, at three o'clock p.m.

The Business Committee reported some proposed amendments to the bye-laws, which were read, and at the next session were taken up, discussed, and adopted. The salaries of the Permanent Secretary, Treasurer, and Reporter on the Progress of Pharmacy were each advanced one hundred dollars.

Professor C. L. DREHL read portions of his report on the Progress of Pharmacy, selecting numerous items which were of most interest. At the closing session, the Committee on Specimens Exhibited reported in part, and obtained leave to report in full at a future time, as it was impossible to do justice to the fine exhibition in the brief time that had fallen to their disposal.

A proposition was read suggesting that this Association take some steps toward furnishing a complete model of an American pharmaceutical establishment, to be displayed at the Centennial in Philadelphia. After some discussion the subject was laid upon the table. A resolution was offered and adopted, "That in future all foreign patent or proprietary medicines and nostrums be treated the same as domestic articles of this class, and that they shall not be exhibited or considered at the meetings of this Association."

After the usual vote of thanks to the Press, and specially to the pharmaceutical brethren of Louisville for their courteous reception and kindness to the visiting members, and some minor business, the meeting adjourned to meet at Boston, September 7, 1875, at 3 o'clock. Having thus stated the business matters of the meeting, it will be well briefly to note the Papers read at the meeting.

Dr. ADOLPH W. MILLER, of Philadelphia, read a Paper on the quality of "American Extract of Licorice," in which he gave the results of his experiments, which proved some brands, more especially the variety made by Mellor & Rittenhouse, to be as good as the best imported, and free from any adulteration, though some other brands examined were found to contain additions of gum or dextrin.

P. W. BEDFORD reported that the sulphate of potassium sold in crystals was pure, while the commercial article known to the trade as "slurry" contained a large proportion of a soda salt.

ALBERT E. EBERT, of Chicago, read a Paper on the character of cincho-quinine, in which he proved by chemical analysis that it is nothing but cinchona, there being *no other alkaloid* of cinchona present.

JOHN F. HANCOCK, of Baltimore, gave a formula for a mercurial powder, intended as a substitute for blue pill. Mr. Hancock took the view that, in the preparation of mercurial pill or powder, the mercury was necessarily oxidised, and that its activity was due to this oxide. The formula he proposed suggested that, after the mercury, sugar, and syrup had been rubbed to extinguish the metal, the powder should be exposed to the air for ten days, in order that this oxide should be formed. Mr. Hancock's views were opposed by several members, and the prevailing opinion was adverse to that of Mr. Hancock, who stated that he would further pursue the subject and report next year.

Mr. CHARLES RICE, of New York, gave a short Paper on oleic acid and its purification for preparing oleate of mercury. He suggested that the crude oleic acid be exposed to a temperature of 60° F., then expressed, then the liquid be exposed to a temperature of 50° F., and expressed, and a third time exposed to a low temperature—this last exposure being at a temperature of 45° F. To the fluid oleic acid add a small quantity of dilute sulphurous acid, agitate till decolourised, then separate and wash with water till free from the sulphurous acid, then free it from the water. In making oleate of mercury, he deems it best to sift the oxide of mercury on the surface of the bleached and purified oleic acid, and stir until solution is effected, using *no* heat.

A. P. SHARP, of Baltimore, suggested the use of lactic acid as a solvent for sulphate of quinia for hypodermic solutions, and gave the following formula:—

Sulphate of Quinia..	..	..	..	..	15 grains.
Lactic Acid ..	..	..	..	..	15 minims.
Rub in a mortar and add Distilled Water to make ..	..	..	..	..	60 minims.
Bisulphite of Sodium ..	..	..	..	..	½ grain.

the latter being added to the solution to prevent decomposition.

GEORGE W. KENNEDY, of Pottsville, Pa., read a brief Paper giving his reasons for preferring hand-made suppositories over those made in moulds, giving as his main reason that there was less likelihood of separation of ingredients. A long discussion which followed served to bring out the personal opinions of members as to the merits of either process, but no special result was reached by the discussion.

P. W. BEDFORD, of New York, gave the results of the examination of the various brands of carbonate of magnesias, which showed that they contained traces of the carbonates of the other alkalies, as also a sulphate.

CHARLES A. HEINTZSH read a Paper which proved that water does not extract all the purgative properties of rhubarb, as an alcoholic extract of the drug which has been previously exhausted with water will prove laxative in doses of less than ten grains, and purgative in larger doses.

J. L. LEMBERGER, of Lebanon, Pa., read a Paper on cosmo-

line, an article in vogue here, it being one of the paraffin compounds, which has been introduced for use as a fatty base for ointments, &c. He gave his experience with it, and said he had seen excellent results sometimes in cases where other fatty bodies did not seem to suit the patient.

PAUL BALLUFF stated verbally that graduates in pharmacy always have a preference over others in the readiness with which they obtained positions in stores and laboratories.

H. N. RITTENHOUSE, of Philadelphia, contributed a Paper showing statistics of compensation paid to various branches of skilled labour, as compared with what is paid to druggists' clerks. Comparing the hours of labour, and the information the latter are expected to possess, Mr. Rittenhouse thinks they are too poorly paid.

Mr. J. L. A. CREUSE, of Brooklyn, New York, presented an admirable Paper on the character of the iron by hydrogen to be found in the market. Samples of every known variety in the market were subjected to an analysis, and their quality determined by comparison with results obtained from a pure specimen of iron, the result showing quite unfavourable for a large number of the kinds examined. This admirable Paper was read only by brief extracts, as it was very voluminous, and in the absence of the writer it was a task to hunt up the salient points.

Dr. FREDERICK HOFFMANN, of New York, presented a Paper on the purity of commercial santonine. Specimens were obtained from various cities and of different manufacturers, and, with the exception of one sample from a Western city, they were pure. There was, however, a considerable difference in the appearance of the crystals, which he attributed to the possible fact that the santonine was crystallised from different solvents.

R. V. MATTISON, of Philadelphia, read a Paper on the effervescent granular salt, in which he stated that a number of the imported kinds were not as reliable as they should be. He also gave a general outline of the process of manufacture.

WALLACE PROCTOR, of Philadelphia, through Professor Remington, stated that he had found no method of preserving garlic so good as the simple one of hanging it up in a cool, dry and dark room.

Professor J. P. REMINGTON stated that further experiments confirmed his statements of last year that benzine was not a good solvent for oleoresinous drugs.

O. EBERBACH, of Ann Arbor, Michigan, read an interesting Paper upon the production of colchicia, but stated that, owing to its small yield and difficult process, it was too expensive and unsatisfactory to introduce it as a remedy to substitute the preparations of colchicum now in use.

J. M. AYERS, of Cincinnati, presented an Essay on cleanliness as a pharmaceutical virtue, the Paper being one quite amusing as well as practically useful.

P. W. BEDFORD, of New York, presented a Paper on the quality and strength of the so-called chemically pure acids. The results of his experiments were that the C. P. nitric and sulphuric acids in the market were not of the full specific gravity, while most of the hydrochloric were denser. The Paper also stated the order of purity of the acids of the various makers, as they responded to the tests employed.

C. L. MITCHELL, of Philadelphia, contributed a very elaborate Essay on "the officinal veratrums," detailing in full all the chemical reactions of the veratrums, as also the various principles isolated. Their physiological characters were determined by employing them on some of the lower orders of animals. Some of the deductions of this Paper may be added, which are:—That there is not such an alkaloid as viridia; that viridia, as heretofore found was jervia; that veratrum album contains an alkaloid, which is distinct from veratria and veratroidia; that the resin of veratrum album is nearly inactive when pure, and that any action is due to the presence of veratrolia; that the alkaloids do not exist in sufficient quantity to extract profitably; jervia does not exist in the seed of veratrum sabadilla; jervia and sabadilla are probably not identical.

JAMES R. MERCIER, of Jersey City, N. J., contributed a Paper urging pharmacists to make some of the chemicals which are usually purchased, and accompanied his Paper with some very handsome specimens of chemicals produced in his store.

Dr. W. H. PILE, of Philadelphia, read a short Paper on an easy process for making bromide of ammonium, also a brief note on phosphuretted resin. A third Paper by Dr. Pile gave a simple method of preparing hydrometers for any special use for which they might be wanted, the application of the method being so ready that any person can perform it.

I. BARTLETT PATTEN, of Boston, Mass., forwarded a Paper on the antiquity of the craft and title of apothecary, the drift of the essay being a plea to retain this title as against those by which our craft has more recently been designated.

C. W. HOLMES, of Wilkesbarre, Pa., gave a brief Paper on castor oil emulsions, accompanied by a formula and specimen of the oil emulsion in which the oil was nicely combined to the extent of one-half of the bulk.

THE EXHIBITION.

No less than forty exhibitors displayed varieties of drugs, chemicals, fancy goods, druggists' sundries, surgical appliances, glassware, apparatus, and pharmaceutical preparations.

The exhibitors from New York were Lazell, Marsh & Gardiner; W. H. Schieffelin & Co.; C. T. White & Co.; Messrs. McKesson & Robbins; Waters & Ricksecker; Arnold & McNary; Sargent, Studley & Co.; and William Gee. From Philadelphia: Powers & Weightman; Rosengarten & Sons; John Wyeth & Co.; Hanco Bros. & White; W. R. Warner & Co.; McKelway & Borell; Keasby, Mattison, & Rutter; Mellor & Rittenhouse; Whitall, Talum, & Co.; Dr. W. H. Pile; and Belanally & Co. From Boston: B. O. & G. C. Wilson. From Cincinnati: W. J. M. Gordon & Co. From Louisville: A. Peter & Co.; R. A. Robinson & Co.; C. C. Breman; Professor E. Scheffor. From St. Louis: Mallinckredt & Co.

The trip from New York to Louisville was a delightful one, our party comprising thirty-four in all. The subsequent visit to Mammoth Cave was especially enjoyed, and may be a topic on which I may give you a brief note hereafter; and the trip homeward, though our party was much diminished in numbers, was a source of pleasure to each and all.

THE TRIP TO LOUISVILLE.

PROFESSOR BEDFORD sends us the following sketch of his journey from New York to Louisville on the occasion of the Pharmaceutical Association meeting there last month. The officers of the Association ought to have announced in advance of the meeting the attractions of the city which our correspondent so expressly remarks—tobacco, whiskey, and pretty girls—and they might then have ensured the attendance of some European pharmacutists:—

Friday evening a party of three of us left New York by sleeping coach on the Pennsylvania Railroad, and early next morning were awakened at the depôt at Baltimore, and a ride in an uncomfortable stage took us over to the depôt of the Baltimore and Ohio Railroad. Just before our train left Baltimore, others of our friends who had preceded us to that city joined us, and a pleasant party of thirty-four (including eight ladies), took possession of the Pullman parlour car, and at 6.30 started to "go west" on this magnificent route.

Our train took the route *via* Washington, so that we had a view of the Capitol in its majestic proportions, with a near view of some of the filth and poverty which may be found in the suburbs of every city. Soon after, we reached the famed Point of Rocks, and a little later Harper's Ferry, the magnificent scenery of which was enjoyed by all of our party. Within a stone's throw of the track at Harper's Ferry is the engine-house where John Brown intrenched himself and made his brief but singular war against Southern principles; and just along from this building, extending for about fifteen hundred or more feet, are the remains of the government buildings which were destroyed by fire in the early part of the war. On a little further is the magnificent iron bridge which spans the Potomac, the predecessors of which were so frequently destroyed by the troops. Overhead, on one side, is Maryland Heights, while just opposite is Bolivar Heights, and from these two points the troops complimented each other with fierce energy and fiercer cannon balls. In every direction we see the direct or indirect effects of the war. Many buildings which we pass in sight of have been either wholly or partially destroyed by troops, or in conflict have been "bored" through. Others are deserted; the window frames have no sashes, doors are wanting, and as firewood is wanted by the neighbours, even the houses are coming down piecemeal.

The natural scenery along this portion of the road is grand, and as I had a choice seat (a camp stool on the rear platform), I thoroughly enjoyed it all.

The architecture of the houses within sight during the principal part of our ride from Harper's Ferry to Parkersburg does not belong to any of the ancient orders, but chiefly to what may be styled "dilapidated." It is scarcely more than a remove or two from the "Aboriginal American." I think our poor forefathers of revolutionary times lived magnificently as compared to those who now live in this region.

But we pass along at a rapid rate, and in spite of the fact that this railroad is one of the most crooked in our land, and has many heavy grades, and that our train was a heavy one, we fly along, up the mountains, crossing the Blue Ridge, the Cumberland, and the Alleghanies, stopping to take an excellent dinner at the "Queen City Hotel" at Cumberland, having passed Martinsburg and other places whose names were famous in war times. I look at the almost impenetrable character of the country—hills and mountains which seem impassable even for railroads—and can hardly conceive how they ever marched troops and armies around this part of Virginia. But now we ascend the heavy grades of the Alleghanies, and by the kind permission of a railroad official I am ensconced in the ear of the engine which takes us up the mountain. From this position one is enabled to see more fully the wonderful engineering which has carried this famous road over this difficult territory. With a heavy engine and a pressure of 140 pounds of steam, we slowly ascend, and innumerable curves add to the hindrance of speed; but we go up, up, and an hour is consumed in going over this grade of 17 miles from Piedmont, and three miles more on a down grade, when we reach Deer Park Station, and here most of our party leave the train to rest over Sunday in a delightful spot, nearly 3,000 feet above the ocean. The railroad company own about 500 acres just here, and they erected in 1872 a fine hotel, the Deer Park Hotel, which is capable of comfortably accommodating 250 guests, and is, without exception, one of the best kept hotels I ever stopped at. No better table is spread anywhere, nor can any exception be taken to its arrangements. Our party are all delighted with their stay, the ladies declaring they wished they could remain for some time.

Sunday morning we took a walk out on the mountains at even greater altitudes, and enjoyed this gorgeous spread of nature. We pass a lumber yard which seems to be doing an immense business, and, on enquiring, learn that it belongs to the Senator of Virginia. This individual was some years ago a brakeman on this road, was advanced to baggage master, then to conductor, and then he took a notion to like politics, and now he is the "honourable representative" of the people. While in the employ of the railroad company he saved money, bought mountain land with his spare cash, and now owns everything in sight for miles around. His saw mill is supplied from his vast farm, and he is "monarch of all he surveys," except the five hundred acres which the railroad company bought of him, on which to erect their hotel and its surroundings. But our day of rest must end; we bid a regretful adieu to "Deer Park," and take cars again westward. But I again recommend this delightful spot to travellers, and believe that no one could stay here a week without being rejuvenated, and made a "new man." Soon after leaving "Deer Park," we enter the Cheat river region, and all the splendid scenery of the first portion of the road is as nothing compared to this. It is superb. But we rush through it too fast to appreciate it as we could desire, and soon after reach Grafton, a point from which the road diverges, one portion going to Wheeling, the other, which we pursue, taking the southern route to Parkersburg.

This portion of the road gave its builders great trouble. No less than twenty-six tunnels, two of them nearly a mile each in length, are dashed through, and at bedtime we reach Parkersburg. A ride at night through Ohio, and early next morning we reach Cincinnati, where most of our party remain over a day; but a few of us push on for our journey's end, going over the Ohio and Mississippi road; a very straight and exceedingly dusty road, though the Louisville branch is free from dust. A ride of five hours, and we cross the magnificent iron bridge, a little over a mile in length, which spans the Ohio at this city; and we are ensconced at our rooms in the Galt House, one of the finest hotels in this portion of our Union. As we left Virginia and passed over into Ohio, the vast difference in the education and manners of the people could at once be noticed in their houses, their speech, their dress and their farms. The corn in Virginia

looked miserable, a single stalk to the hill, scraggly, poor, and the fields were mere patches; while in Ohio, in spite of the fact that there has been but a single shower in four months, their fields of corn are vast in extent and the crop is in splendid condition. The dress and appearance of the people is far superior, and school-houses are frequently to be seen. Not a single school edifice was noticed in Virginia.

As I arrived in Louisville a day before the meeting was to be convened, it gave me some opportunity to look around. There were three things which attracted my special attention—tobacco, whiskey and pork.

The immense warehouses for the storage of the "filthy weed," are to be found in various quarters of the city; and the casks, averaging a ton each of it, are some indication of the traffic of this city in that line.

Of whiskey, I cannot say much, save that the numerous signs of large dealers and of distilleries whose names we see advertised in eastern papers, as furnishing "pure Kentucky Bourbon," make us feel that we are near the source of the vile stuff.

This city commands an immense trade in pork; and last week there was a convention of pork-packers from the leading sections of the Union, who, as well as the pill makers, made the Galt House their head-quarters, and there was no little fun thrown from the one party to the other, as to their respective occupations.

These pork men are jovial, hearty men, most of them of spreading proportions; and though Shakespeare speaks of the apothecary as lean and cadaverous, there are not many such in our party. Were it not for the difference in the badges worn by the pork men and the pill men, we might pass for the former class. Our hotel is crowded, and "mine host" was quite stirred up to feed the 650 people that were quartered there last week.

I took the opportunity to visit the Louisville Exposition, of which much has been said. It does not meet the expectations of most visitors; and after seeing the Exposition at Cincinnati, it seems very tame.

A most ludicrous affair happened while there. Just within the entrance was quite a large aquarium, well stocked with fish, and many choice varieties were represented. During the evening, while a large number were standing viewing this wonder, a plate of glass burst out, and in a moment, instead of fish and aquarium, there was a seared and copiously ducked crowd of the fair sex, who, with saturated clothing, sadly and rapidly started for their homes.

Louisville is celebrated for its numerous and beautiful blondes; but as it is not my way to look after the young girls, cannot say much about them. I can only add that it is the current expression that there are more pretty girls in Louisville than in any other city of the south-west.

But I have neglected our meeting. It continued from Tuesday afternoon until Friday noon, holding six sessions, during which, besides the usual routine of business, there were many valuable and interesting papers read; some spirited scientific discussions, a fine exhibition of drugs, chemicals, apparatus and druggist's sundries, contributed by druggists in New York, Philadelphia, Baltimore, Cincinnati and Louisville, and other places.

The pharmacists of Louisville made us welcome indeed. The ladies were provided with carriages, and all the points of interest within easy riding distances of the city were shown them.

A promenade concert and hop was given in honour of the Association, at the theatre in the Leidenkranz building, on Wednesday evening; and the splendid music was followed by the merry waltz and the more staid quadrille. Of course I danced! Where could I show my sylph-like proportions to better advantage?

On Friday afternoon, after the final adjournment, our whole party of nearly two hundred were taken to New Albany, Ind., distant about five or six miles, and visited the Star Plato Glass Works, said to be the only works in this country where polished plato glass is made. This to me was a really enjoyable trip, and the manufacture of the glass and all the various stages of the process were kindly explained to us by one of the officers of the company.

But our meeting has closed, and now comes the thought of turning homewards. But most of the party have determined to see that big hole in the ground ye left the Mammoth Cave.

Saturday morning we start to see this wonder, and after a ride south-west for 85 miles, are told the next station is Cave

City. The cars stop, and a party of some 75 step out, to the great astonishment of the natives, and the delight of the youthful fruit vendors. The railroad ride has carried us through some places that suffered greatly during the late unpleasantness; and the country does not seem prosperous. The drought has affected the crops severely; and the staple of this portion of the State, tobacco, will not yield one-fourth of what was anticipated, so that farmers will make no advance this year. There are no surface streams of any account for miles in any direction; but that subterranean streams and rivers exist is a well-known fact. It is to this that the various caves throughout this locality owe their origin. Besides Mammoth Cave, there are Indian Cave, Proctor's Cave, and at least a dozen others of less fame.

We arrive at Cave City, and rushing into the edifice dignified with the title of Hotel, we enquire the "probabilities" of appeasing our appetites, and are informed that dinner will be ready soon. After some delay, dinner is announced, and the ladies, with their companions, being first seated, others are admitted until the tables are filled, the remaining unfortunates having to wait for the second table, and fearing there will be only a table, and nothing to eat. Such a dinner! Our rescue from a fearful dyspepsia was alone owing to the ordeal to which we were afterwards subjected. We won't say anything more about that dinner, but it reminded me of the title of one of Mark Twain's books. The way water-melons were purchased of the youthful speculators suggested that there were still some aching voids unsatisfied.

After some delay, we were told the stages would be ready for us in five minutes. The bills state that the ride to the cave is made in easy Concord coaches. It is quite a delusion. I got a seat on top of one of those easy-riding Concord coaches. Some were not as fortunate, and in order to accommodate our unusually large party, farmers' wagons were procured, and chairs placed in them.

We start on our nine miles' ride, the first three of which are up a rugged, stony mountain. The temperature going up that hill could not be taken—it was fearful. However, we reach the summit, and the rest of the road is good, running along the top of the ridge which is a "divide," in some places being not more than thirty feet wide, in others more than a mile. We pass one edifice, which answers for meeting house, school house, and all similar purposes. It is about twelve by fifteen feet, built of rough logs, and tightened with clay. We pass a few rough houses, apparently devoid of any comfort, and our driver tells us the occupants are well-to-do, and have large farms. We pass some fair damsels airing themselves, and enjoying a good ride. Their vehicle is primitive—simply a long board from the front to the hind axle—the team attached to it are two oxen, a horse, and a donkey; and the fair damsels, with a box of snuff in one hand and a piece of wood in their mouth, are engaged in the interesting occupation of "dipping"—i.e. chewing snuff.

Our ride has occupied us a little over two hours, and all are delighted as the coach turns toward a building, and, the coloured driver blowing his bugle, we rein up at the Mammoth Cave Hotel. We alight, register our names, get the ladies assigned to rooms, and then get ready to take a walk through the "short route" in this wonderful cave. We had to wait quite a while, and must ask you to do the same, good reader, for the Royal Mail steamers would disregard such a petition.

BACKWOODS PHARMACY.

BEFORE the days of Pharmaceutical Societies, Journals, and legislation in America, a strange way of doing things, not altogether modified since, was in vogue, worth recounting, perhaps, in this modern epoch.

A personal experience in the "drug trade" there for twenty years (1842 to 1862) entitles me to claim entire veracity for this chapter of peculiarities.

Our city was one of twenty thousand inhabitants, situated in the Empire State, proud of its classical patronymic, suitably supplemented by a Mount Ida and Olympus, humble modern imitations of their Grecian prototypes. Although not exactly in the "backwoods," we were very near neighbours. Witness the "hundred mile tract" which begins near the southern end

of the beautiful Lake Champlain, and whose furthest border reach nearly to the waters of Ontario. The settlements surrounding this region were our customers, and an endeavour will be made in this article to depict the supplies we were in the habit of furnishing to the traders, and they to the inhabitants of this semi-benighted region. These details will also indicate the general character of the jobbing trade (as ours was a wholesale house) in America at the period mentioned.

Our town was conveniently situated for "Northern trade," being at the head of the *tide water* of the noble Hudson river as well as at the confluence of the romantic Mohawk therewith, and also at the *débouché* of the grand canal officially denominated Erie. Here, at that period, the splendid river was spanned by the only and first bridge on the way up from New York, and also was the beginning of the branch canal connecting the Lake Champlain with the Hudson. Thus positioned: a town, we enjoyed Northern New York and Western Vermont as clients, and we had nothing but precedent and our own sense of decency to guide us in regard to the purity of the medicines and other supplies we delivered to our customers. It may be noted that by far the larger portion of the drugs and medicines consumed by the back country at that time reached the public through what are denominated the "Country Stores," veritable bazaars in each small town and village, where everything required by the neighbourhood—from a salt mackerel to a bottle of paregoric—was kept in stock. The "Retail Drug Store" existed only in a few of the large towns.

We, "Jobbers," and they, "Country Store" retailers, we *equally* and—why not say—*happily* oblivious of the protective supervision of Pharmaceutical Societies.

Perhaps there was one at that epoch just breaking out from its shell in the staid old town of William Penn on the banks of the Delaware. If so, it was only at rare intervals that we gathered from the annual assembled wisdom of the Quaker chemists and druggists of Philadelphia. Their grave deliberations and occasional decisions took form and substance in the annual revised edition of the *United States Dispensatory*, edited by Wood & Baché. *Par parenthèse*, the only confidence the assembled wisdom succeeded in inspiring was, it would seem, emanated from the adoption of their conclusions by the aforesaid firm in their annual compendium. We in the back country possessed, therefore, a pharmaceutical freedom, which we used, can at this day confess, quite as much for our commercial profit as for the benefit of our customers.

People like us, who bought a new edition of Wood & Baché each decade, were sufficiently advanced for the time in which we lived.

This individually authorised compendium included the substance of all we were bound to know, or rather aspire to become familiar with. The official formulæ therein contained were supposed to serve as a guide for the *first class* chemists in each city and large town in the compounding of their various preparations. We had in the wholesale trade our private recipe books, arranged as faint imitations of the *Official*, and by these we much preferred to be guided.

In another article a variety of these "backwoods formulæ" will be given, illustrating our system in actual operation. Two years ago our clients put in a personal appearance for the purpose of laying in their supplies; these epochs we denominated "spring trade" and "fall trade." The hotels of our little city were at those seasons overflowing with "country merchants *en dimanche*," topped off with a new stove-pipe hat. The month of April and May, and September and October, being favourable to early rising, the commercial world precipitated itself, at an untimely hour of six, towards the leading hotels, in the "lounge rooms" of which, as well as upon the piazzas, were congregated their restless victims, who, being unable to sleep, were worried off the anticipatory hour of the seven o'clock breakfast, sharpening their toothpicks and comparing notes upon the previous day's purchases. The appearance at one minute before seven of the head clerk at the door of the dining-room with enormous bell in his hand sufficed to precipitate the entire crowd into that apartment, leaving the *chef* to ring in a wild and isolated manner upon the piazza for the distraction of the neighbours. Chuzzlewitz's experience upon a similar occasion in New York duplicates this scene. We of the town also waudered to a hurried meal, having only succeeded in arranging appointments at the "store" for after breakfast with a certain number of the aforesaid merchants. Needless to mention, the hotel breakfast was a brief and decisive affair, all the operators being out on the piazza in ten minutes, comfortably sitting

on their backs in the arm chairs, with their new boots against the columns and their hats complacently poised on one ear, enjoying a cigar. This siesta lasted only a brief half-hour, when each took his way to the various establishments at which he was accustomed to trade, and then our "trouble" began. First in order was the settlement of the half-yearly account, and we thought ourselves very promptly paid if half the amount was given in money and the other half in a bill at four months, payable at the customer's local bank. Occasionally we had ready money buyers, but not often; these, however, were not courted, being altogether too critical in regard to prices to suit our ideas of a fair profit. Then we took down their "bill of goods," which comprised a great variety of oils, paints, colours, medicines, dyos, perfumery, and certain of the lighter articles sold by grocers as well. The varied character of the stock dealt in was bewildering. With an annual sale of about 20,000*l.* we were obliged to keep one-third that value nearly always in store, even with the facility of obtaining ourselves fresh supplies, being near the principal seaport.

In the first half of the period of which I am writing but few patent medicines were in vogue, and the requirements of the country were much greater relatively for medicines. Yet not more than a quarter of the amount of our annual sales consisted of druggists' supplies. Like all jobbers at that time we had an extensive demand for patent medicines imitated from the English. The number of grosses we sold in a year of those cheap and simple specialities was wonderful. During the dull summer months and the long and cold winter, we used our spare time in getting up a stock of hundreds of grosses of "Dr. Bateman's Pectoral Drops," "British Oil," "Hill's Balsam of Honey," "Godfrey's Cordial," and similar old style patents. Those good old Quakers at Philadelphia supplied us, from their glass works on the New Jersey sands, with the requisite bottles and vials of the orthodox model, with the proper inscriptions blown in their sides. Other accommodating firms in New York printed for the trade the direction wrappers, labels, and signatures in the ugliest possible style, and upon the most miserable paper—admirably adapted to disgrace the British originals. Our perfumery also bore the labels of well known Paris houses, without which it failed to inspire confidence—the labels for the same being also supplied by the New York printers. The trade mark laws of late years in force, and the general introduction of the products of the Paris and London perfumers have, it is proper to remark, led to the discontinuance of these practices by all respectable houses.

The trade in medicinal chemicals was at that time hardly known. Those giant laboratories, the commercial foundations of which were laid by John Farr and the elder Rosengarten, were not even imagined perhaps by themselves: later on the progress of medical science demanded more extensive supplies in this department, and the enterprise of Powers and Weightman, once clerks to John Farr, and also the sons of Rosengarten—who have worthily and successfully elaborated the ancestral beginning—abundantly supplied the products demanded by the medical profession. A word in passing in praise of the thoroughly high-toned and intelligent manner in which the operations of these houses have been for two generations conducted: as examples to the trade of high-minded dealing, crowned with abundant success, they are not to be omitted in a discursive article like the present. Our country trade for years bought little of these chemicals—only where their local physician gave them a special order. Unlike the dealers in the Southern States, we had few demands for quinine, but frequent ones for morphia; our calomel, red precipitate, corrosive sublimate, Epsom salts, sulphuric, nitric, and acetic acids, also ethers, ammonias, and chloroform (as soon as discovered) were all of Philadelphia manufacture. The commercial metropolis—New York—accomplished little in the way of wholesale laboratory work for the trade at this period, and even to this day ranks far behind the rival city in her chemical production.

En revanche, our country dealers demanded liberal supplies of the vegetable drugs of foreign derivation. Our sales of "bottled goods" were large. There was hardly ever enough castor oil, olive oil, essences of peppermint, wintergreen, cinnamon, and anise, paregoric, hive syrup, &c., got ready for the busy season. Once our clients returned to their homes, and their orders despatched, our entire force fell headlong at work in preparations for the following season. Among other occupations there were two of a most prosaic nature—the manufacture of mercurial ointment, which we sold in considerable quantities, and which required an amount of patient work and an assiduity

quite remarkable. The other diversion was that of mixing and putting in boxes paste blacking: our neighbours became aware of this operation by the pungent fumes which permeated the vicinity when mixing the sulphuric acid with the molasses and ivory black. Other distractions were not lacking, among which were the boiling of linseed oil, the manufacture of putty, the compounding of blister and other plasters, the fabrication of dozens upon dozens of Peppor Saueo, that tonic horror, with catsup; the bottling of hundreds of gross of black, and, worst of all, blue ink, for which the country had at one time a passion. We also diluted and bottled the strong aqua ammonias and spirits of nitre to a point profitable to ourselves and safe for the public. Our powdered drugs were derived from large establishments who made them a speciality: as for their purity we had no guide, except that the first cost per pound should not be too far below the import price of the drug itself. Although not doing in a retail way, we answered all calls upon us for the inert products as well as for the leading poisons without a doctor's prescription, quieting our uneasiness about the destination of the medicine by an occasional question as to "What are you going to do with it?" Most of those powerful drugs which are handled so daintily now-a-days, and under such stringent legal restrictions, we were told were to be devoted to kill a dog, or rats, or for some other equally vulgar use.

From this sketch one might suppose that our firm were lost to all sense of decency and honesty in the transaction of their business, or that this picture is too highly coloured; on the contrary, it may be taken as a faithful account of the state of the drug trade in our section of America at the epoch mentioned. We supplied the grade of goods wanted for the interior population at prices they were willing to pay, and we had often a certain pride in comparing ourselves with other wholesale houses. Gradually, however, with the lapse of years, a higher standard was claimed by the public, and a class of wholesale dealers arose who claimed to sell "pure drugs," for which they obtained extra prices; first the medical men went to patronise them, and then a select part of the country dealers, as well as all the regular drug stores. These diversions from our trade led to more care being taken by ourselves in obtaining reliable goods, and an important amelioration soon came about in the quality of medicines supplied to the interior districts. To-day there is little to be desired in this direction, all houses of any repute being quite as desirous of sending out the best products as their customers can wish. Profits have naturally diminished, but the annual total of business has largely increased with the denser settlement of the country, and the net returns of any well-established house are generally quite satisfactory.

Our country storekeepers' semi-annual purchases usually amounted to from fifty to seventy pounds; fully one half the sum was made up of oils, paints, colours, varnishes and brushes. A quarter included dyestuffs, window glass, glues, and similar items, leaving the remaining quarter for medicines; thus, while doing ostensibly a wholesale drug business, our transactions were comparatively limited in drugs.

The country population was not as dense in the earlier time of which I write as it has since become, neither were they as large consumers *per capita* of medicines as they are at this day: the agricultural people, as well as those of the small towns, were not rich enough to admit of the expense of such unlimited dosing as their prosperity later on allowed them to indulge in. Nearly all medicines were much dearer at wholesale than now, and, in consequence, the price in small quantities, when they reached the consumer, was too onerous to allow the gratification of the passion for dosing: for there is no denying that Americans have a special *penchant* for drugging themselves upon the least plausible pretence. The enormous aggregate import of foreign drugs, as well as the great consumption of domestic ones, exhibits this, without taking into consideration the immense sales of the popular specialities which have arisen during the last twenty years. In a sparsely settled country, where the services of a doctor can only be had by going miles, it was necessary for each family to have on hand a small variety of the ordinary medicines, as well for convenience as to economise the expense of the doctor's visit.

The country physician of that day was of necessity the healthiest, most vigorous and energetic man of the neighbourhood; the amount of fatigue he had to endure was prodigious. Night and day, in all weathers, he traversed his district on horseback, with the ever-present saddle bags. A few years later that funniest of all vehicles, the "Sulky," came into use, and the doctor's perambulations became more swift as well as

more agreeable. This elastic construction had a frequent and dangerous habit of tossing out the occupant when the wheels struck a small boulder, and therefore in the lapse of time it was discarded, and the light and elegant "buggy" took its place, while in more flourishing neighbourhoods the "phaeton" came into vogue, and is now the recognised means of transport of the flourishing practitioner.

The dearth of drugs paved the way for the patent medicine men who have since reaped so rich a harvest; the initiators—most of whom are now well known to fame, and enjoying splendid incomes—gave special attention to the *pill* business. It was at this period that Brandreth, Wright, Herriek and Jayne laid the bases of their tremendous sales. Up to the year 1850 it was regarded *infra dig.* for a wholesale drug house to deal in "patents;" there was too pronounced a flavour of quackery about them to allow of their being admitted into the regular stock and transactions of a reputable firm; besides, they were not sufficiently established to give confidence enough to hold them in stock. The forerunners in this field were compelled to send out expeditions in the shape of pedlers' waggons to leave with the country dealers *on sale* a stock of their products. These waggons usually called upon their clients for a settlement and to leave fresh supplies twice a year. The slim returns and considerable expenses of doing business in this way generally resulted in involving the proprietors in deep financial embarrassments, and it was only after years of struggle that they have been enabled to emerge into an easy and progressively successful trade. All the originators of the great popular patents of the day have passed through this preliminary ordeal. Publicity was little in vogue at the time of which I am writing; the aim was to bring the preparations directly into contact with the people through the country dealers. A few cheaply printed almanacs were annually furnished to the country stores, also a plain show bill, and that was all the advertising effort made. The price of all the specialties then in vogue was also very low; nothing over twenty-five cents (one shilling) would sell, while to-day we find preparations going off by the hundred thousand bottles annually at five or six times this price.

Soon after this period there came into existence, in the leading country towns, dealers who prepared all the bottled goods usually required by the country merchant, and peddled them around the country, thus pruning our wholesale business of one of its most profitable branches. Gradually these travelling dealers included in their assortments the best known specialties, and they thus became valuable auxiliaries to the patent medicine proprietors. From these beginnings arose regular houses dealing largely in patents, treating for heavy lots with the proprietors, and giving many a struggling one a helping hand at a critical moment, in the shape of a large order. A large number of the drivers of these pedlers' waggons have since come to fame and fortune as heads of large wholesale houses or proprietors of specialties. "Prince Erie," of lamented memory, once held the ribbons of a first-class waggon of this kind emanating from his native town of Brattleboro', Vermont, but he afterwards soared into the higher regions of stock jobbing, where he floated until his taking off occurred.

It will not, perhaps, be too indiscreet to mention also that the head of the greatest American patent medicine house of to-day has in his early days traversed the old Green Mountain State with wagon-loads of patents, essences, cheap perfumery, inks, castor oil, &c.

The rapid extension of the retail drug business—every important town and village now possessing one or more establishments—has driven out of the medicine traffic the country store, and rendered the *role* of the pedler superfluous. The clients of the wholesale drug trade are now the retail druggists, and while they may not themselves always be critical as to the quality of the medicines supplied, their local reputation and the exigencies of their patrons require constantly a higher and higher standard. In several States legislation has undertaken the regulation of the traffic in medicines, and the pharmaceutical societies, both national and local, volunteer a supervision not at all times to the taste of the interior dealer, but, on the whole, stimulative of good results.

How far these influences and the natural progression of the chemists themselves have changed the character of both the wholesale and retail drug business in America during the latter part of the epoch I have written of, as well as in subsequent times, I shall sketch in a second article, and endeavour to depict the transformation of "Backwoods Pharmacy" to its present modernised phase.

MARSEILLES SOAP AND THE FRENCH SOAP MANUFACTURE.

By P. L. SIMMONDS.

THE French had made great progress in soap manufacture long before our industry had attained any very important position. Now we stand equal, if we do not surpass any other nation in the quality and quantity of the soap made—thanks to our freedom from all fiscal or legislative supervision. As the French manufacturers have recently been struggling under the difficulties of troublous times and fiscal burdens, it may be interesting to glance at the present and past condition of this great industry in France.

It is stated that in the ninth century soap had become an important article of commerce in Marseilles. But it was not till 300 years later that its manufacture was commenced there. The Marseilles manufacturers had then important rivals in Venice, and especially in Savone, and its real prosperity only dates from towards the close of the seventeenth century. From the commencement of the present century, up to about 1830 Marseilles possessed almost the monopoly of the Continental soap manufacture. The favourable situation of its port, which placed it in ready communication with Eastern and African ports producing oil seeds, its vicinity to Italy, from which it obtained large quantities of olive oil, and the manufacture of artificial soda discovered by Nicholas Leblanc, which was made in immense quantities on its shores, ensured for it all the essential materials requisite. But in the last forty years the old oily city has found rivals in Paris, Lyons, Nantes, Bordeaux, Orleans and other towns of the north, which compete with it in soap for household use and manufacturing purposes, white, yellow and grey and of varied colours, with a base of tallow, olive palm oil, as well as the brown soaps with a rosin base.

The soap manufacture had in former times many difficulties to encounter. Thus, in 1688, an edict of Louis XI compelled the manufacturers to close their works during the months of June, July and August, under pain of confiscation of the products. It also prohibited the soap makers from using any new oils, also under pain of confiscation. It interdicted the addition of any animal fat or other oil to olive oil. In 1776 these regulations were abolished, but the manufacturers were forced to coalesce for the raising of prices, and the maker's name was required to be stamped on the soap as a guarantee against fraud. This did not satisfy the makers, and there followed a great stagnation of trade.

Six years later the absurd measure of closing the soap works in summer was resumed, this time at the request of the makers themselves.

In 1789 all the restraints on the soap trade were removed. But there resulted from this many abuses: soaps containing a large quantity of water were sent into commerce, and the effect of the Council of Prudhommes failed to stop this fraud, which was only terminated by three decrees of the Empire compelling the makers to print on their products the raw materials of which they were made. The number of soap-works at this period was 46, which used up 138,000 metrical quintals of olive oil, which 30,000 were Provence oil. The raw materials used were valued at a little over 19,500,000 francs. The soap made was estimated by M. Chaptal at 225,000 metrical quintals, of value of 30,000,000 francs, so that the profit to the soapmakers was more than 10,000,000 francs (or 400,000*l.*) divided among 46 makers.

In the close of 1838 the soap-works were reduced to 40, which produced 40,000,000 kilos.

The official returns made in 1866 gave 167 soap factories in France, which produced 1,073,251 metrical quintals, or 107,325 tons, and the foreign imports were 48,196 tons, making a total of 155,521 tons; deducting from this 15,000 tons exported, there remained 140,000 tons for local consumption.

The returns from the soap-makers at the close of last year

when the new taxes were proposed, carried the production much higher, as is shown by the following figures :—

	Tons
Marseilles	80,000
Paris	15,000
Nantes	4,000
Other towns	101,000
Imports	200,000
Exported	40,000
	240,000
	15,000
	225,000

Showing a considerably larger home consumption.

The Chamber of Commerce of Rheims reported officially at the close of 1873 that there were four soapworks in the town, which produced in 1872—

	Kilos.	Value
		Francs
Soaps for washing wool, thread and stuffs	1,712,000	856,200
Hard soap	123,257	74,192
	1,835,257	930,492

From the official returns published by the Chamber of Commerce of Marseilles in their "Compte-rendu de la situation commerciale et industrielle de la Circonscription de Marseille pendant l'année 1871," published last year, it is stated that the production of soap there in 1871 was estimated at 50,000,000 to 60,000,000 of kilos. (of a little more than 2 lbs. each). The greater part of this was consumed in France; but it may be worth while to show the quarters to which shipments were made:—

	Kilos.
Algeria	2,000,000
United States	1,400,000
Belgium	600,000
Holland	400,000
Spain	500,000
Italy	400,000
Mauritius	300,000
Réunion	200,000
Martinique	200,000
Gundaloupe	200,000
Senegal	200,000
Egypt	200,000
Malta and Gibraltar	200,000
England	100,000
Turkey	100,000
British North America	100,000
Cayenne	100,000
Other countries	200,000
	7,400,000

The name of Marseilles soap is properly restricted to the quality which presents a marbled, veined appearance of pale or bright blue, which affords a guarantee of good honest manufacture, permitting the purchaser to appreciate, by a simple glance, the true value of the product he is buying. It is the good quality of this product, generally appreciated, which has stimulated other countries to endeavour to produce a similar soap, and which has extended also to all the soap works the desire to make and maintain what may be considered a normal soap. In 1855 there were 47 soapworks in Marseilles, and of these 37 makers, using 210 boilers of a mean capacity of 13 cubic metres, and 488 of the basins called *mises*, in which the soap is concreted, employed in the various operations 800 workmen. There was produced annually 44,000,000 kilos. of pale or bright blue marbled soap for the consumption of France, 10,000,000 kilos. of white soap for home use, about 6,000,000 kilos. of marbled soap, and 1,000,000 kilos. of white soap for export, in all 60,000,000 of kilos., of the value of more than 2,000,000*l.* sterling.

In many industries soap is largely employed. The silk manufacturers of Lyons use a large quantity in the preparation and dyeing of the fabrics. The washing of wool and the

dyeing of cotton also use up a large quantity of soap. The ordinary wholesale price of soap in France is from 70 to 80 francs the 100 kilos. The present prices at Marseilles for the various classifications are:—

	Francs	Francs
Pale super.. .. .	62	to 65
Pale ferme	51	" 59
Moyen ferme	57	" 58
Pale moyen	57	" —
Pale et vif recuit	56	" 57
Bl. a l'huile d'olive	84	" 86
Corps gras divers	65	" 73
Savons a froid	48	" 64
Pale et vif au talc	48	" 51
" recuit	48	" 49
Blanc au baryte	—	" —

To give an idea of the importance of the trade in oil seeds, I may state that the imports of all kinds, which, in 1861, were only 103,000 tons, had risen, in 1870, to 184,000 tons. These oil seeds consisted of sesame, teel, or gingelly seed from the Levant, India, and Africa; ground nuts, shelled or in the husk, from West Africa; linseed and cotton seed from the Black Sea and Egypt; copra (cocoanut pulp) and palm kernels from India and Africa; colza and rape seed, &c., in the following proportions:—

	Tons
Sesamum seed.. .. .	77,800
Ground nuts	45,470
Linseed	17,132
Cotton seed	18,214
Palm kernels and copra	15,235
Other oil seeds.. .. .	11,029

The imports of 1871 were a little lower.

But Marseilles also imports largely oils and fats for its principal manufacture: the commerce in these has always been considerable. A short notice of the principal oils employed may prove useful.

As the culture of the olive on an extensive scale only exists in the countries bordering on the Mediterranean, Marseilles has always been one of the largest entrepôts for olive oil, which it receives from Italy, Spain, Northern Africa, Greece, and Turkey, to be consumed in France and the neighbouring countries. It exports its edible Provence oil to all countries, but especially to the colonies. The greater part of the olive oil which arrives at Marseilles, and a great quantity of the oil crushed from imported seeds, is used up locally for food, lighting, making soap, and oiling machinery, &c.

The various uses of olive oil cause a great difference in price, according to the several qualities of this valuable substance. Thus it is classified into fine, or superfine edible oil, machinery oil, oil for manufacturing use, for turners, oil from the pulp or husks, &c., according to its taste, limpidity, or other elements of appreciation.

All the parts of the fruit of the olive will yield oil, but the largest quantity is contained in the cellules of the fleshy pericarp. The collection of the olives is either by hand, when it is intended to obtain virgin oil, or they are beaten down with sticks. They are gathered before they arrive at maturity if a fine oil is desired, but this is prejudicial to quantity. The larger kinds of olives yield an inferior oil to that obtained from smaller fruit, which are less pulpy and more bitter. The smaller varieties are more subject to the attacks of insects.

In the south of France the olives are taken to the mill in November and December. Those destined for table oil are crushed between the stones lightly, so as not to crack the kernel. The pulp is enclosed in bags or mats made of esparto grass, called *scufoins*, and submitted to the press cold. There flows, from the pressure, a yellowish green or golden yellow oil, according to the localities.

This oil retains the flavour of the fruit. The pulp contained in the *scufoins* is emptied out, and boiling water is poured on it, when it is submitted to a second pressure. The water carries away with it the greater part of the oil remaining in the pulp, and this is the ordinary comestible oil. It is also produced by submitting to the press the crushed olives mixed with water. The third quality is *lampante* or machinery oil. This is obtained from inferior fruit, or olives which have been allowed to ferment slightly before being submitted to pressure. It is not sent into commerce until it has been kept some months in large vats to settle the foreign substances arising from the trituration of the olive, and to clarify it.

When all the oil has been exhausted by the boiling water and pressure the bags are emptied, and there remains the marc or *grignon* formed by the *débris* of the pericarp and nut. This

pulp is crushed in the mill, and sprinkled with boiling water. It is then thrown into large reservoirs filled with water, moved about, washed, and left to settle. After a certain time a layer of oil forms on the surface. It is passed successively through various receptacles of water until all the *débris* of the fruit has been removed. The oil thus obtained is called oil of *réense*; it is very thick and coloured green by the resin which Chevreul calls *viridine*. If the oil is occasionally brown, it is because the husks have undergone an alteration. After it has rested some time it separates into two layers, one limpid, which serves for oiling machinery, and the other thicker, highly charged with stearine, which the soap-makers utilise for its drying properties to counterbalance the weakness of seed oils. It is especially employed for making hard soaps, or *savons de coupe ferme*, intended for hot climates. All the waste waters of oil mills are collected in vast cisterns called *enfer*, and after a certain stay are filled with a tainted oil which passes under the name of *huile d'enfer*. The oil presses of Provence supply very little olive oil to the Marseilles soap works. The makers only buy the *réenses*, for all the oils of the south are destined for table use, and are too fine to be employed for industrial purposes. But there arrive at Marseilles manufacturing oils from Corsica, Algeria, Spain, Southern Italy, Morocco, Tunis, and the Levant.

The oils from these different countries vary in their composition: thus, certain olive oils of the Levant, that of Candia, for example, are more charged with stearine than those of Tunis, and require weaker lessives to saponify them. On the contrary, oils rich in oleine require very concentrated alkaline solutions. Olive oil soon turns rancid, but does not thicken. Other oils, on the contrary, like linseed, nut oil, hemp and peppy oils, solidify. Hence the division of oils into drying and non-drying oils. This property is due to the oleine, which alters in oxidising. The product of this alteration is, in non-drying oils, an acid of a disagreeable odour, which irritates the throat; in the drying oils it forms an actual resin.

For the manufacture of soap, especially white soap, uncoloured oils are preferred, and green oils are rejected because the *viridine* alters the whiteness of the product.

In buying olive oil, the purchaser allows the sample to rest for several days in a temperature of 20°, to ascertain what deposit it forms. Its rancidity is further tested by alcohol, which dissolves the rancid portion. It forms two layers: the fluid is poured off and the deposit weighed.

The following was the quantity of olive oil received at Marseilles in 1871:—

	Kilos.
Manufacturing and lamp oil	6,000,000
" Réense " oil	7,000,000
Oil from pulp or husks	3,000,000
Edible oil	2,000,000
Other kinds	4,000,000
	22,000,000

All but 4,000,000 kilos. of this was used up at Marseilles or the rest of France.

The soap manufacture, which had been interrupted by the late war, has begun to resume once more its activity.

Besides the olive oil there was received by sea about 4,400,000 kilos. of seed and palm oils, and there were produced by the oil mills within the *octroi* district of Marseilles 45,000,000 kilos., making 49,400,000 kilos., to which has to be added about 7,400,000 kilos. made by the oil mills beyond the *octroi* radius.

Of this there was sent away 28,000,000 kilos., the remaining half being used up in Marseilles. The palm oil was received from England, the West Coast of Africa and Portugal; the cotton oil from England, except a small quantity from Spain. The ground nut and castor oil from England, Italy, and French India; the sesame oil from England, Spain, and Italy.

It is estimated that the quantity of seed oil made in Marseilles is in the following proportions:—Sesame oil, 50 per cent.; ground nut oil, 30 per cent.; linseed oil, colza, and other oils, each about 10 per cent.

Ground-nut oil—"huile d'Arachide" of the French—is obtained from the underground seeds of a leguminous plant, *Arachis hypogæa*, which is largely cultivated in parts of the West Coast of Africa. After three pressures, of which two are cold, about 30 per cent. of oil is obtained, which is liquid and colourless when pure. Density at 15°, 0.9163.

Cocoanut oils from copperah, or the pulp of *Cocos nucifera*, is chiefly obtained in Ceylon and Ceylon in India. Liquid in the tropics, it solidifies in transit to a country where the temperature is 16° to 18° Centigrade; hence it is usually solid, opaque, and unctuous in Europe. With soda it forms a brittle

and very frothy soap. This soap, decomposed by an acid, gives a particular oily acid—cæcinic acid. This oil is often added to ground-nut and other oils rich in oleine.

Colza Oil.—The cruciferous seed of *Brassica campestris* yield by expression about 35 per cent. of an oil which requires to be purified by sulphuric acid because it retains much mucilage. This oil seed, which is chiefly cultivated in Alsace, is very rarely sent to the south, being largely used in the north for making soft soap.

Cotton-seed oil is made on a large scale in Marseilles, and the soap makers mix it with other oils. The supply is principally drawn from Egypt.

Linseed oil is largely made in Marseilles, both for painters and soap makers' use. Although this oil saponifies easily when it is fresh and cold-pressed, it is not profitable for the soap makers. It is only employed for mixing with other oils, because it forms with soda a yellow soft soap of a disagreeable odour, and soon changes in its marbling to a rusty colour. Density 0.930.

Poppy-seed oil is colourless, or of a golden yellow. Its flavour when pure resembles olive oil. Its density is 0.9249, and it only solidifies at 18°. It does not easily turn rancid. A certain quantity is used in Marseilles in making hard soap.

Palm oil is obtained exclusively from the West Coast of Africa. There are two kinds; one obtained from the fibrous sarcocarp of the fruit of *Elais guineensis*, and the other from the kernel of the nut, and hence called palm-kernel oil. A Marseilles palm oil is only employed for making toilet soaps but in England and the United States common soaps for export are made with it. It is of an orange yellow colour, of an agreeable odour, fluid in warm climates, and solid in northern countries. It melts at 27°. It saponifies readily with alkalis and makes a yellow soap. This soap is occasionally imitated by perfuming with orris root and colouring with turmeric, soap made of lard or other fats.

Sesame oil is obtained from the seeds of *Sesamum orientale* of India and Africa. There are several varieties, distinguished by the colour of the seeds—white, brown, and parti-coloured. The Levant seed furnishes the best and the largest quantity of oil, yielding as much as 50 per cent. by three pressures, two of which are cold. The oil is of a golden yellow, inodorous, oxidises on exposure to air, and has a slightly rancid flavour. It solidifies at 50°. Density at 15°, 0.923.

The animal fats used for soap imported into Marseilles are tallow and lard, of which 9,377,492 kilos. were received in 1871 although this is a recovery on the short supplies of the two previous years, it is far below the imports of 1867, which reached 11,163,244 kilos.

ON FEEDING BOTTLES.

By EUSTACE SMITH, M.D.

(Assistant-Physician to the City of London Hospital for Diseases of the Chest, and Physician to the East London Hospital for Children, &c.)

IN the artificial rearing of infants it is of importance that food should be given to them from a feeding-bottle. By this means the natural method of taking nourishment is imitated; the muscles of the mouth and cheeks are brought into play; and the secretion of saliva—a secretion which, very scanty at birth, becomes gradually more copious and takes so active a part in digestion—is encouraged and increased.

Almost all babies will take their food more readily by this method, their instinct teaching them to suck everything that is put into their mouths. Even in cases where a deficiency in the hard palate presents so great an obstacle to sucking, on account of the impossibility of creating the necessary vacuum in the mouth, the difficulty can be overcome by a simple mechanical contrivance. Therefore, in every case of hand feeding a suitable bottle is the first thing to be desired.

To be satisfactory a feeding-bottle must fulfil three indispensable conditions: it must be simple in construction and easily manageable; it must be capable of being readily cleaned; and in its use the milk must flow easily and without great effort on the part of the infant. The ordinary feeder in use at the present time consists of a flattened glass flask closed at the mouth by a cap, which fits over the neck. A caoutchouc tube passes through the cap and is connected

inside the bottle with a straight glass pipe. The other end of the elastic tube is attached to the teat, or mouthpiece, by means of a short hollow cylinder called the "union-joint." The teat is firmly fixed to this by means of the shield. In the construction of the cap and union-joint, metal, earthenware or wood is employed. The metal used by the best makers is tin, and this, if cleanliness be properly attended to, is not objectionable. In cheaper bottles, sold in the shops for sixpence, the mouth is closed by a perforated cork, through which the flexible tube passes. Here there is no cap, but in all essential points the construction is the same as in the more expensive articles.

In this apparatus it is important that the channel through the tubes should be perfectly free. The point at which the channel is narrowest is the union-joint, which connects the mouthpiece with the flexible tube. In a badly made bottle an impediment may exist at this point from carelessness in the manufacture, and may present a great obstacle to the ready passage of the fluid. Care also should be taken that the flexible tube passes completely through the cap before it becomes connected with the glass pipe. This is very important. In the early feeding-bottles constructed upon this model by O'Connell, the glass pipe passed from within the bottle through the cap, and was attached outside this to the caoutchouc tube. It was thus held rigidly in the centre of the bottle, and, as a natural consequence, when the apparatus was in use, unless the bottle was held upright during the whole meal, long before its contents were exhausted the milk ceased to flow, as the end of the pipe soon came to be above the surface of the fluid, which necessarily gravitated to the lowest part as the bottle lay upon its side. When, however, the connection between the two tubes is made within instead of outside the bottle, this disadvantage no longer exists, for, the glass tube being free to move, its end is able to sink to whichever side of the bottle is undermost; and, therefore, always remains below the level of the fluid. The best bottles have a small cylindrical step, *i.e.*, a thick ring of metal or wood placed within the flexible tube just above its junction with the glass pipe. The object of this is to prevent the latter from being drawn through the cap and thus held rigidly in the centre of the bottle.

The method of connection of the cap with the neck of the bottle is not unimportant. It should not be too tight or air will be prevented from entering the bottle to supply the place of the milk which is withdrawn. A common plan is to line the interior of the cap with cork, but this substance, besides its risk of being broken and detached by careless handling, has the further disadvantage of absorbing milk, which turns sour, and may afterwards set up fermentation in fresh milk put into the bottle for a subsequent meal. In the best bottles the cap is constructed to screw on to the neck, as in the "Alexandra" feeding-bottle made by the Messrs. Maw, or is united to it by an application of the "bayonet catch," as in the "Improved" feeding-bottle made by Messrs. Lynch & Son. In this very admirable apparatus three grooves on the inside of the cap pass over corresponding projections on the neck of the bottle; the cap is then turned to the right with a slight screwing motion and becomes securely fastened.

With badly made bottles infants often have very great difficulty in drawing up the milk, and can only do so by violent efforts, which soon exhaust their strength or their patience. There are two reasons why milk in these cases may not flow easily—either the cap fits too tightly, so that air cannot enter with sufficient facility in proportion as the liquid contents become diminished, as has just been mentioned; or the caoutchouc forming the flexible tube is too thin, so that it collapses when suction is applied. In the first case a small hole should be made through the cap, so as to allow a free admission of air, or if the bottle be a simpler one, closed at the mouth by a perforated cork, this may be slightly eased at the neck of the bottle so as to fit less closely. In the second case stouter caoutchouc should be used in the construction of the tube. In weakly infants or those much reduced in strength by acute disease special attention should be paid to these points, as such children will often refuse to take the bottle if they find any difficulty in drawing up the milk.

Infants born with a cleft palate cannot suck from an ordinary bottle, as the deficiency in the hard palate prevents the necessary vacuum being formed in the mouth. Such children are, therefore, usually brought up with a spoon, and often waste and die through insufficient nourishment. An ingenious contrivance, first suggested by Mr. Oakley Coles, will, however, entirely remove the difficulty and enable them to suck with as

much ease as if they suffered from no such congenital deficiency. The plan is a very simple one, and consists in attaching to the nipple of any ordinary feeding-bottle a flap of sheet elastic cut to fit the roof of the mouth. This flap must be of the shape and about the size of the bowl of a teaspoon, and is to be sewn to the upper part of the stalk of the teat where this projects from the shield. In the mouth of the child the flap forms an artificial palate, which, if the sheet elastic chosen be sufficiently stout, offers firm resistance to the tongue pressing against in sucking, and prevents fluid from passing into the nose in the act of swallowing.

The closest attention must be paid to the cleaning of feeding-bottles. Each time, after being used, the whole apparatus should be well washed out with water containing a little soda in solution. The inside of the cap must be carefully cleaned, and the brush should be carried several times through the whole length of the tubing. Afterwards the bottle and tubes should be laid in cold water until again wanted. An objection to the common brush usually supplied with each feeder is that after a few days' use the softened bristles are apt to get detached and be caught in the joints of the tubing, whence they may afterwards be washed by the stream of fluid and be swallowed by the child. Accordingly a new cleaner has been manufactured by Messrs. Maw & Sons, in which bristles are entirely dispensed with. They are replaced by a thin strip of caoutchouc, which is wound round in a spiral form at the end of the ordinary wire handle. This instrument answers all the purposes of a brush without the disadvantage alluded to, and is, besides, far more durable.

Excellent feeding-bottles are now made by many different manufacturers, and are sold at prices which place them within the reach of the poorest. These cannot all be mentioned, but some of the bottles more commonly met with may be shortly referred to. The sixpenny feeder made by Messrs. Maw, Son & Thompson can be recommended for its simplicity of construction, and at the same time for its perfect efficiency. In this instrument there is no cap: instead, the mouth of the bottle is closed by a cork, which is perforated for the passage of the flexible tube. In all other respects the construction of this apparatus is the same as in the more expensive instruments. The "Alexandra" feeding-bottle, price half-a-crown, by the same makers, is an admirable bottle. The cap screws on to the neck, and is furnished with a small hole for the admission of air. A "stop" in the lower part of the flexible tube prevents the glass pipe being drawn into the cap, and the instrument is supplied with all the latest improvements. The bottles made by Messrs. Maw are all furnished with the new patent cleaner just described. The "Improved" feeding-bottle, made by Messrs. Lynch & Son, at one shilling, and eighteen-pence, has been before referred to. The material used for the cap is box-wood. It is a capital bottle, and will give the fullest satisfaction to the purchaser. Mr. Lang's "Alma Mater" feeding-bottle can also be recommended. In this instrument the cap is made of earthenware and is lined with cork. A good bottle is made by Mr. Elam, of Oxford Street, price two shillings; the cap is formed of Britannia metal, and screws on to the neck. A cheaper bottle, but one which for elegance of design and accuracy of detail cannot be surpassed, is Mr. Mather's "Princess" feeding-bottle. A tin cap screws on to the neck and is pierced by a small hole for the admission of air. This opening is fitted with a "cone-valve" of simple and ingenious construction, which allows air to enter freely when suction is applied to the tube, but closes firmly against any escape through the air-hole of the fluid contents of the bottle. The bottle itself has a double curve towards the neck to provide against any too sudden bending of the flexible tube against the cap. This is apt to happen when the curve is single, if the bottle lie with the convexity downwards, and partial obstruction of the tube may be the result. The "Princess" feeding-bottle is sold in the shops for eighteen-pence.

All bottles bear their name in raised letters upon the glass, but a report which has obtained currency that these letters are hollow in the interior and difficult to clean is without any foundation in fact. Any one may test this for himself by placing a finger within the bottle underneath the letters, when the internal surface will be found perfectly plain and uniform.

In all cases where cork enters into the construction of a feeding-bottle, especial care should be taken in cleaning the apparatus, and the cork should be well soaked in soda and water in order that any sour milk it may contain may be neutralised at once.—*Sanitary Record*.



COLONIAL BUILDINGS, 44A CANNON STREET, LONDON, E.C.

Published on the 15th of each Month.

Subscription, 10s. per year, payable in advance;
commencing from any date.

Post free to every country in the world.

Single Copies, 1s. each.

A Copy of THE CHEMISTS' AND DRUGGISTS' DIARY, published annually, is presented to every subscriber. Price to non-subscribers, 3s.

Advertisements, Remittances, Subscriptions, Orders for Copies, and all communications must be addressed to "THE PUBLISHER OF THE CHEMIST AND DRUGGIST."

Cheques and Post-office Orders to be made payable to *Edward Halse* and crossed *Martin & Co.*

No one is authorised to collect money without production of the Proprietors' lithographed form of receipt.

Receipts not forwarded for subscriptions, nor for any sums under 10s., unless the remittance be accompanied by a stamped envelope.

SCALE OF CHARGES FOR ADVERTISEMENTS.

One Page, 5l.; Half Page, 2l. 15s.; Quarter Page, 1l. 12s. Special Rates for Wrapper and the pages preceding and following literary matter. The above Scale of Charges will be subject to a discount of 10 per cent. upon six, and 20 per cent. upon Thirteen insertions. Seven lines and under, 4s. 6d.; every additional Line, 6d. Advertisements of Assistants Wanting Situations (not exceeding 12 words) inserted at a nominal charge of 1s. each.

All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

Subscribers are requested to observe that the receipt of THE CHEMIST AND DRUGGIST in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further number will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order, without an exact system like this.

Terms for Advertisements over the Leaders may be obtained on application to the Publisher.

Subscribers residing abroad can remit subscriptions, either by Post Office Order, or order on London houses. Or they may send the currency of their own country, according to the following tariff:—

Anstralsia ..	10s.	India ..	5 rupees.
Austria ..	5 florins.	Italy ..	11½ lire specie.
Bavaria ..	10 marks.	Japan ..	2½ guildens.
Belgium ..	12½ francs.	Java ..	6 florins.
Brazil ..	5 milreis.	Mauritius ..	3 dollars.
Buenos Ayres ..	2½ dollars.	Mexico ..	2½ dollars.
Canada ..	2½ dollars.	Norway ..	2½ dols. specie.
Chili ..	2½ dollars.	Monte Video ..	2½ dols. specie.
China ..	2½ dollars.	Portugal ..	2½ milreis.
Cuba ..	2½ dollars.	Prussia ..	10 marks.
Demerara ..	2½ dollars.	Russia ..	3½ roubles.
Denmark ..	4½ R. dollars.	South Africa ..	10s.
France ..	12½ francs.	Spain ..	2½ dols. specie.
Germany ..	10 marks.	Sweden ..	2½ dols. specie.
Greece ..	15 drachmæ.	Turkey ..	50 piastres.
Hamburg ..	8 marks et.	United States ..	2½ dollars.
Holland ..	6 guildens.	West Indies ..	10s.

DOMESTIC FILTRATION.

"WITH regard to the Silicated Carbon Filters, I have made many experiments upon them, and have been astonished at the energy and rapidity of their action. I passed through a small Filter of this make some of the worst description of water supplied by the London Water Companies, and found it, after filtration, to have become as pure as the very best London water. My experiments show that the Filter exercises a decomposing action—a chemical action—on the Organic impurities in Drinking Water. I have no doubt that water, which is dangerous from the Organic Matter contained in it, becomes safe on passing through the Silicated Carbon Filter. A point of some importance, shown by my experiments, is that a Second Filtration still further improves the quality of Drinking Water. After being in use for a considerable period, Filters lose their power and require renovation. I have found that the passage of a little Hot Water through the Silicated Carbon Filter, and afterwards blowing a little air through it, restores its power."

J. ALFRED WANKLYN, M.R.C.S., London,
Formerly Professor of Chemistry in the London Institution;
Joint Author of a Book on Water Analysis, and of the
Autoclave Process.

RENDALL'S THEOBROMINE, OR CONCENTRATED COCOA.

THE Purity and Excellence of this Cocoa is obtaining for it an increasing demand.

Sold by most respectable Chemists in 1s., 2s., 3s. 9d., and 7s. 6d. tins.

To be obtained through the Wholesale Houses, or direct from the Proprietor,

J. M. RENDALL,

28 Queen Street, Exeter.

Chief Wholesale Agents—

SANGER & SONS, 150 OXFORD STREET, W.

POROUS BATTERY CELLS

OF SUPERIOR QUALITY.

PATENT PLUMBAGO CRUCIBLE COMPANY,

Sole Makers of Morgan's Patent Crucibles,

BATTERSEA WORKS, LONDON, S.W.

VICHY WATER COMPANY,

27 MARGARET STREET, REGENT STREET,

LONDON.

General Dépôt for all Mineral Waters.

PHARMACEUTICAL DEPRAVITY.

FOR polished style and for epigrammatic force we commend to all readers the address to pharmaceutical students delivered a week ago by Mr. R. W. Giles, at Bloomsbury Square. Those, too, who heard it will heartily endorse our statement that its delivery was worthy of its composition. Most appropriately is Mr. Giles's retirement from the pharmaceutical profession marked by the delivery of this unusually brilliant essay. It is in every respect a characteristic production, and he need hardly wish to leave behind him in the trade a more honourable memorial of his intellectual ability.

The lecture, we say, was characteristic: it was characteristic in its defects as well as in its excellences, in its failure as well as in its success. The assumption of a lofty moral altitude as his own basis, and the ability to discover in others and severely to denounce defections from the standard adopted by himself, have always been Mr. Giles's besetting temptations. Such an imperial method of defining the boundaries of right and wrong may be a perfectly proper tone for an apostle to adopt, and might be excused in a bishop, but we are not bound to submit to the castigations of any merely mortal man, however able he may be, for infringements of the decalogues, or possibly hecatologues, which he may choose to provide out of his own moral consciousness for our ethical guidance.

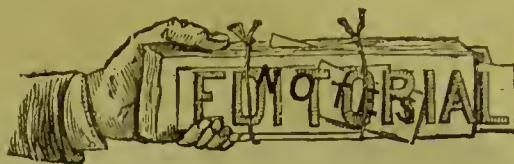
Sincerely desirous of arriving at a just appreciation of the question which Mr. Giles, and previously Professor Attfield, have argued so energetically, it is necessary to strip from their orations the rhetorical abuse with which they have so liberally garnished it, and ascertain what is the precise wickedness which they so heartily hate. To put it into quiet English phrase we take it as a fair statement of their opinions, that they regard as dishonourable and disgraceful the conduct of the candidate who, having to pass a certain examination, studies with the express object of accomplishing that purpose. As a corollary to this belief, they very naturally include in their condemnation every one who openly aids in this preparation for examination. We challenge anybody to prove that that monstrous proposition is

not logically contained both in Mr. Giles' and Professor Attfield's addresses. We assert that logically they characterise "preparation for examination" *in itself* as a crime, and that on this basis they rest their lofty denunciations of "cram," "cheating the examiners," "sailing under false colours," and all the rest of it.

Now it will be conceded that everybody who has an examination to pass does undoubtedly prepare himself for it, anxiously and earnestly. To guard against an overthrow of our argument on this point let us except, say, one in a million. The tendency, however, is natural, universal, unavoidable. We are aware that this does not affect the moral aspect of the question, but it does affect the practical utility of the discussion which has been raised. But the answer would be, We do not object to a fair and honest preparation for examination; what we object to is making the examination the end and aim of the study. To this we reply that unless our opponents maintain their proposition in all its nakedness their argument crumbles to pieces. It is as honest for one man to prepare himself for examination as for another. A man selects pharmacy as his vocation; for what reason is beyond the question. He has no particular liking for the study of chemistry, botany, or material medica, but he knows what the legal requirements are, and he therefore studies those sciences up to the standard fixed by law. There are hundreds of such cases. Is such an one comparable as a pharmacist with him who with a real love for his work makes it his hobby, his delight, the constant object of his thoughts? By no means; but it is quite conceivable that he may be an equally honourable man.

We shall set aside without discussion the story of the miraculous influence of Dr. Varnish, and the equally amusing, but as Mr. Giles correctly describes them, inscrutable specimens of the methods adopted to hoodwink the examiners. Such items form pleasant light reading in a popular periodical, but they are out of place in an argument intended to be taken seriously. They are also, we may add, quite incompatible with any sort of respect for the Board of Examiners, at whose expense the joke is made.

As the remedy for the sad condition which they so much bewail, Mr. Giles and Professor Attfield coincide in recommending that all candidates for examination shall pass through a compulsory curriculum at a recognised school. How that would effect their purpose we are at a loss to conceive. Neither a five months' nor a fifty months' course would extinguish the tendency to prepare for examination if such was existent at the commencement. At least it would be necessary to establish a chair of moral philosophy, and engage a professor thereof gifted with Mr. Giles' subtle eloquence. May we ask whether the four years' course which the Medical Council exacts has served to annihilate the tendency? There seems to us to be no connection between the disease and the proposed remedy; nor do we think the examples of France and Germany need be allowed to weigh much in the advocacy of an enforced curriculum. Our pharmacy is in a sounder and more prosperous condition than is that of France; while, as to Germany, the regulations and position of the profession there are such as to prohibit the possibility of any fair comparison. At the same time we have confidence that a curriculum of study may be advocated, even as a matter of trade policy, for England, and we shall welcome its adoption when the right time comes. But it is not for the School of Pharmacy to decide when that reform is due. It is essentially a subject which the trade as a body, and not merely a particular section of it, must agree to agitate. There is no necessity that this question should occasion angry differences. Let those who perceive the desirability of such a further restriction of the practice of pharmacy urge their views with all their energy, but in temperate language, and reserve their anathemas for more appropriate occasions.



THE BEDFORD PHARMACY PRIZE.

The prize offered by Professor Bedford for the best set of answers to the questions published in our August issue has been awarded to

F. Williams, junr., 15 Belvidere, Bath.

The following are the solutions to the problems, with the methods of calculation:—

I. Ans. 17 fluid ozs. 242·5 grs.

$$\begin{aligned} 20 \times 480 &= 9,600 \\ 9,600 & \\ 1 \cdot 25 &= 7,680 \\ 7,680 & \\ 437 \cdot 5 &= 17 \frac{242 \cdot 5}{437 \cdot 5} \end{aligned}$$

II. Ans. 34 fluid ozs. 342·4 grs.

$$\begin{aligned} 40 \times 437 \cdot 5 &= 17,500 \\ 17,500 & \\ 1 \cdot 15 &= 15,217 \cdot 4 \\ 15,217 \cdot 4 & \\ 437 \cdot 5 &= 34 \frac{342 \cdot 4}{437 \cdot 5} \end{aligned}$$

III. Ans. 15 troy ozs. 45 grs.; 16 avoirdupois ozs. 245 grs.

$$\begin{aligned} 15 \times 437 \cdot 5 &= 6,562 \cdot 5 \quad \left\{ \begin{array}{l} 7,245 \\ 480 \end{array} \right. = 15 \frac{45}{480} \text{ Troy.} \\ 65,625 \times 1 \cdot 104 &= 7,245 \quad \left\{ \begin{array}{l} 7,245 \\ 437 \cdot 5 \end{array} \right. = 16 \frac{245}{437 \cdot 5} \text{ Avoir.} \end{aligned}$$

IV. Ans. ·9142.

$$\begin{aligned} 10 \times 480 &= 4,800 \\ 12 \times 437 \cdot 5 &= 5,250 \\ 4,800 & \\ 5,250 &= \cdot 9142 \end{aligned}$$

V. Insufficient data were purposely given: it was, therefore, impossible to calculate the specific gravity of the fluid.

The following are the Marks Awarded for Answers.

F. Williams, junr. (Prize)	98	W. Johnson	66
E. Yates	96	Weymouthia	66
A. W. Forrest	88	E. J. H. Thring	66
Archimedes	80	C. J. Weir	66
W. J. Palmer	80	M.	60
W. Connor	78	G. H. Newton	60
Fmbryo	78	P. L.	60
H. Ellis	78	Excelsior	58
W. H. Newsam	78	E. C.	58
W. A. Wilson	78	Rawtenstall	58
R. R. Marsh	78	T. T.	56
W. A. B.	78	H. J. Jackson	56
R. H. Parker	78	H. Allen	53
J. R.	78	A. McNaught	50
J. Blacklock	78	Omega	50
W. G. Gordelier	78	D. Grant	46
A. Walsh	78	G. R. Newton	43
S. H.	78	A. Law	38
A. E. Ekins	76	G. A. Storey	18
J. Hutchinson	76	An Apprentice	15
C. J. M.	70	D. A. M.	0
J. L. W.	70		

We have forwarded the Papers to Professor Bedford, and will leave him to comment on them if he should see fit.

THE FATAL ERROR AT DEWSBURY.

By the accidental substitution of acetate of morphia for pepsine in a draught mixed by a chemist's assistant at Dewsbury a life has been sacrificed. The event demands the serious consideration of the whole trade, and it is not unlikely to command thoughtful attention in other quarters also. The sharp controversy of 1871 on the submission to a set of compulsory Poisons Regulations is no doubt still in the memory of all chemists. It ended by the issue of the suggested "regulations" in the form of "recommendations." We are quite unable to state to what extent these recommendations were adopted by those chemists who had not previously made special provision against poisoning

accidents. But now, at any rate, a case has occurred which has found out the weak spot, and we confess we can see no sufficient reply to Mr. Simon if he should claim that the life lately lost might have been spared if the bill he suggested had been allowed to pass into law, and had been enforced. From the reports of the case which we have seen, it would appear that though on a different shelf, the pepsine and morphia bottles in Mr. Parrington's shop were of similar size and style, and both equally at hand. The mistake was extraordinary enough, no doubt, but mistakes always are extraordinary in some respect. The business of a chemist compels him to deal in these deadly substances, but his own self-interest, not to speak of his duty to society, ought to speak to him of his responsibility and induce him to take every possible precaution against accident. If these lines should be read by any whose poison stores are not in such a state as could be approved of by the most minute inspection of a competent authority, we urge, with this recent death as a terrible support to our words, their instant and thorough arrangement, as the most important and pressing duty to be discharged.

EDUCATION AT A DISCOUNT.

A LETTER in a recent number of the *Chemical News*, signed by a Leeds workman, tells a curious story in respect to the requirements of a certain branch of chemical manufacture. The writer says he has looked in a great many works on chemistry for information on the manufacture of archil and cudbear, but in all the works out there is no real practical information on the subject. The reason, he believes, is because the manufacturers keep it as secret as possible. At the place where he works, he says, they will employ no one that has worked in any chemical trade; and when they engage anyone there is a deal of cross-questioning about where he has worked, and whether he can read and write. If he can, it is ten to one if they employ him, because they want the men as ignorant as possible—they want them to do their bidding, but not to make any mistakes, and not to enquire into things.

We are not quite confident about the degree of morality indicated by this disloyal workman's communication, but as he has made public some of the secrets of the trade we may as well give our readers the benefit of his information by quoting his formulae from our contemporary:—

Archil Liquor.—To make liquid, put 300 lbs. of Zanzibar orchella-weed into a cistern, about 120 gallons of ammonia at 3° strong on the top of it; steep day and a night; run it out of the cistern into pans heated with steam pipes underneath, the size of which is 6 yards by 4, 1 foot deep, with a lid on the top. Take the lid off once a day, about five minutes agitate it a little, and then it will be ready in about six weeks for storing up or dyeing with. Worth about 3*d.* per lb.

Paste Archil.—To make paste archil the weed is ground a little; it is worked in pans heated with steam pipes underneath (size about 4½ feet long, 2¼ feet wide, 2 feet deep), with an iron lid to fit on to keep the ammonia gas in. In these pans we put 50 lbs. of weed, 100 of ammonia 8° strong. It is turned over with a shovel twice a day (morning and night), and it will be ready for coming off in about eight days; then it is mixed with 20 lbs. of sulphuric acid and 200 of common salt. That is for four of these pans; contents of all four put into a cistern, the acid, salt, and water mixed together. Worth about 2½*d.* per lb.

Cudbear.—To make cudbear is just the same as paste. Instead of mixing with salt, acid, and water, it is dried on an iron plate about 10 yards square, with steam heating it underneath. When it is dried, it is ground to a powder; then it is cudbear of commerce. Worth about 8*d.* per lb.

Blue Archil.—To make blue archil, put 100 lbs. of weed, 300 of ammonia 6° strong; work cold; turn over twice a week. It will be ready in about ten weeks. That is blue archil of commerce.

EVENING CLASSES, KING'S COLLEGE, LONDON.

WE have to notice the admirable series of lectures which are given in the Strand every evening in the week, except Saturday. The introductory address was delivered by the Rev. the Principal, on Friday, October 2, and the scheme is now in full working order.

Fears were entertained as to the measure of approbation which would be bestowed on this plan of placing collegiate education within the general reach. The experiment has been abundantly successful. The courses are held during the months from October to March inclusive, and during the months of April, May, and June. Let it be distinctly understood that no popular teaching is attempted, but such instruction as would fit a graduate for his professional career. Any or all the sets of lectures may be attended, and many have special reference to the B.A. and matriculation examinations at the University of London. The subjects embrace the range of studies that appertain to a classical, general, and technical education. Greek and Latin, mathematics and mechanics, chemistry, botany, geology, and physics, modern languages, logic and political economy: Shorthand, wood and iron work, may all be cultivated between the evening hours of six to nine o'clock.

Should any of our students or their friends resident in town choose to avail themselves of this curriculum, they will find themselves in the company of associates drawn from every part of the metropolis—men from the civil service, clerks in public offices, and a fair supply of tradesmen who are bent on utilising their leisure time. The German class specially commends itself to the attention of pharmacists, and it has the advantage of being under the care of Professor Bucheim. Four courses for the term which ends in March may be followed for five guineas, and separate courses for a proportionate outlay. Prospectuses, and all requisite information, may be obtained from the Secretary's office at Somerset House.

THE PHYLLOXERA.

THERE is good news for the teetotallers in the reports of the ravages effected by the phylloxera on the vines of the South of France. The real danger threatened by these insects is testified by the fact that the French Government offers a prize of 12,000*l.* to any scientific David who will arise and slay the microscopic Goliath. M. Lichtenstein, a distinguished entomologist, has been studying the habits of these little nuisances for the past six years, and he has recently announced that his acquaintance with the enemy's camp is sufficient to justify him in proceeding to open warfare. He estimates the production of these insects to proceed at the rate of about half a million daily from every two acres. But he finds that they have a curious habit of leaving the vineyards and depositing their eggs in the bark of the cochineal oak tree. What is not quite clear is how the infant phylloxerae get back from the oaks to the vines. M. Lichtenstein, therefore, suggests the sacrifice of these oaks just at the moment when they are full of the dangerous rising generation. Partially successful experiments have, moreover, been made with coal tar, and also with sulpho-carbonate of potassium, the latter being suggested as a suitable insecticide by M. Dumas. This chemist has also warned his *confrères* against the danger of bringing specimens of the foe to Paris for the purpose of studying their habits. He reckons that if a couple of them should get loose there a year or two would be time enough for them to get at the Champagne district; while, if they have to get from their present home, a respite of six years may be looked for, during which time M. Dumas hopes French science will discover an effective means of checking the enemy's dreaded progress.

THE LIVERPOOL CHEMISTS' ASSOCIATION.

THE affairs of the Liverpool Chemists' Association at this moment have assumed an aspect a little puzzling to those who are not engaged at the scene of action. Indications of a restlessness of spirit, to use a somewhat colourless phrase, were manifested occasionally during last session. This has now culminated into a distinct party division. This is simple enough, but the puzzling point of the business is to explain definitely the basis either of the new or old party. One thing seems certain, and we mention it to the credit of our Northern *confrères*, that notwithstanding some smart explosions, or in their absence, a continual smouldering of political difference, there seems to have been an entire absence of personal jealousies or animosities. The "situation" is briefly this:—

Last year, during the presidency of Dr. Symes, a difference of opinion arose as to the expediency of making the Association the medium of an open demonstration against the Adulteration Act. Dr. Symes (President), Mr. Armstrong (Secretary), Dr. Cook, and Mr. Hallawell seem to have been the chief promoters of that suggestion. Discussions in the council on the subject waxed warm, but ultimately the opponents of the idea defeated the proposal. How serious this decision appeared to the Revolutionary party (as we will call them, merely for the sake of distinction), may be judged from the fact that Dr. Symes resigned his presidency and Mr. Hallawell his seat on the Council, while, at the next general meeting, Dr. Cook publicly proposed the expulsion of Mr. Abraham, on the ground that he was opposing the interests of the Association. All this, however, was apparently healed up, but the recent election of officers for the ensuing session has again tapped the slumbering fires. The Conservative party, which is numerically by far the stronger of the two, with an honest desire to smooth over recent roughnesses, proposed the re-election of Dr. Symes as President. After some reluctance on the part of that gentleman the appointment was accepted, and matters seemed hopeful. But a week after, Dr. Symes regretted his precipitate treaty of peace, and somewhat energetically announced his resignation. A meeting was again called, and Mr. A. H. Mason, the Vice-President, was then elected to the supreme office. Mr. Armstrong next declined to act as Secretary under a Conservative chief, and as if to prove that war to the knife had been privately agreed upon, Mr. Hallawell refused the vice-presidency, to which, as a last attempt at reconciliation, he had been unanimously elected. Mr. Edward Davies was then chosen to that office, but the secretaryship was for the moment left in abeyance.

This is all we know of this interesting little episode of pharmaceutical history in Liverpool; and we confess that we are not quite certain of the accuracy of all our details. If we have made any errors we shall be glad to correct them, and we hope somebody will furnish us with materials to continue the drama.

MONSIEUR BOBŒUF.

THE obituary for September includes a well-known Parisian chemist, respecting whom an occasional French correspondent forwards us the following:—

On Saturday, September 26, at his residence, in the ancient cathedral town of St. Denis, near Paris, expired, at the age of 67, a practical chemist of whom France has reason to be proud, and who was also known to no inconsiderable extent abroad.

Monsieur Bobœuf has been for some years one of the most industrious and intelligent workers in tar products—more especially in the adaptation of some of their elements to a popular practicability.

While the efforts of the lamented Calvert tended to the pro-

duction of pure carbolic liquors and crystallisations, and with an unequalled success, as all are aware, Bobœuf dreamed only of the methods of producing forms suitable for popular adaptation. Calvert's rôle was obviously more scientific than Bobœuf's, but each have left a good work behind them, imbued with utility to the greatest extent. Bobœuf, always an active and most enthusiastic laboratory worker, succeeded in depriving the carbolic liquor of its caustic qualities, and thus rendered it susceptible of entering, so to speak, into "popular consumption."

Phenol-Bobœuf has become a household word in France, and the sanction of the French Academy of Sciences, proved by their award of the "Prix Montyon" to his product, at once removed the "Phenol" from the category of "specialities." My late and lamented friend had only recently commenced to reap the reward of his labours, and was entering upon an elaborate work in reference to black dyes from tar products when he was prostrated by a long-existing chronic disease.

Socially Bobœuf was one of the most prominent Parisian figures: personally known to thousands. A Benjamin Franklin-like aspect, and an open manner inviting friendship, his memory will not quit us for many a day.

Close to the grand old Cathedral of St. Denis, where so many of the regal notabilities of ancient France have been entombed, he was buried.

DANGERS OF CHLORAL.

AT the conclusion of a series of well written papers by Dr. Milner Fothergill, in the *Sanitary Record* on "Mental Strain," the author makes some very serious remarks on the abuse of chloral hydrate as a hypnotic, which he believes to have assumed very grave proportions. He says the public were led to believe from the enthusiastic reports of the properties of this remedy that at last an agent had been discovered which would secure sleep without any of the baneful effects of alcohol or opium; and it is not, therefore, surprising that it should have gained an extraordinary popularity. "But," says this writer, "the brief flourish of trumpets which announced its discovery has given way to a well-established and justly founded outcry against its abuse, and the evils which attach to its employment. More dangerous than opium, more baneful than alcohol, an utterly destructive agent, except in certain active sleepless conditions, when it should be given by medical men alone, chloral hydrate is working much irremediable mischief in our midst. The evil consequences of the habitual use, or rather abuse, of chloral hydrate are becoming much more vividly apparent. Its destructive action on the nerve centres, its production of a permanent condition of brain bloodlessness, and consequent imperfect function of the brain-cells, are being widely recognised; and it is now established beyond all question of doubt that the adoption of chloral hydrate as a hypnotic in lieu of opium is the adoption of a greater evil than the one it has replaced."

Dr. Fothergill goes on to recommend to those afflicted with sleeplessness a good walk before bed-time, and if some artificial means be necessary, a glass of spirits after getting into bed. If yet some further hypnotic be requisite, he would advocate opium in conjunction with a gentle aperient to somewhat counteract its injurious effects. But chloral hydrate, with its unfathomed dangers, should be in the store of the skilled professional only.

A WOMAN named Franklin died very suddenly at Oakham on the 28th ult. She had been subject to spasms, and in the evening had obtained some medicine from Mr. Pascall, chemist and druggist, which had given her ease. During the night she became restless, and about midnight died. An inquest was held, and the jury returned a verdict of "Death from Natural Causes."

CHINESE PHARMACY.

THE shops in the larger cities are often so well arranged as to render it difficult to suggest an improvement. Such a shop consists of an apartment intended for the reception of the customer, another in which the apothecary and his assistants are engaged, and these are divided by a third, in which the dry medicinal agents are stored in drawers. Above the drawers are shelves for the reception of porcelain and glass vessels, in which are contained conserves, electuaries, and powders. The furniture is made of oak, ash, pine, and occasionally of rosewood, and is often painted or varnished. The drawers are all properly labelled with yellow or red paper labels. In the rear of the shop proper are the laboratory and the store-room, which are orderly and methodically arranged. Pills are the most popular form for the administration of medicines.

PILLS.—These are often composed of substances which would be disgusting to the European, and are variously coloured—blue, red, &c. The substances necessary to their composition—among which are most popular powdered minerals and metals of various kinds, catechu and extract of opium, hair, dried skins and bones of animals, powdered canella, rhubarb, cardamoms, ginger, galanga, &c.; starelies, resins, and gum resins—are mixed in granite mortars with water, gum, honey, or syrup, until a pill-mass is obtained, which is rolled out, divided equally with a knife, and formed properly by hand. The following formula will give a general idea of Chinese pills:—*Py-choang* (yellow sulphide of arsenic) q. s. is heated in a vessel of cast-iron until vapour is no longer evolved; is then powdered, a little of the oil of *Hôang-hoa* (from the fruit of *Carthamus tinctorius*) is added, the mixture is heated and formed into pills of the size of a small pea.

POWDERS are also used quite extensively, seldom simple, more generally compound. One of the most remarkable formulas for a compound powder is the following:—*My-to-seng* (chromate of lead) q. s. is powdered; the powder is introduced into jujube-berries, from which the seeds have been removed, and the berries so filled are then charred, again powdered, and given in doses of about seven grammes.

OINTMENTS AND PLASTERS are also quite popular, and are usually soft, and are obtainable, ready spread upon linen or paper, from itinerant physicians upon the streets. Debaux found such a plaster—recommended against glandular inflammation—to be composed of resinous matter, fatty oil, and a large proportion of powdered mylabris. Some of the salves have been in use anterior to our era. Such are salves containing sulphur, sulphuret of calcium, or calomel and corrosive sublimate.

CONSERVES.—Many vegetable substances used in Chinese medicine—such as giuger, galanga, zedoary, Japanese may-flowers, young bamboo-stems, sugar-cane, sweet and bitter oranges, &c., are conserved by dipping them several times in boiling syrup and drying them upon trays, by which treatment they become covered with a crust of sugar, and form very popular remedial agents.

WINE AND SPIRITS.—Grape wine is not used in Chinese pharmacy, but is supplanted by *cha-sinkio*, a vinous liquid obtained by fermentation from rice. Rye, barley, and maize are also used for this purpose; their flours being mixed in large jugs with water, and fermentation incited by means of *kiou-tsé* (i. e., wine-seed), which is really nothing further than yeast obtained as residuum in the vessels in which fermentation had previously taken place. Although the grape is cultivated in a number of the central provinces, wine from them is scarcely known. By the distillation of these fermented liquids their brandy is obtained, with which, among others, the following *bitter brandy* is made:—Aloe, myrrh, olibanum, of each 12 parts; curcuma, 2 parts; they are powdered, mixed with 750 parts of brandy, exposed in a close vessel to the sun for one month, and then decanted.

INFUSIONS AND DECOCTIONS are popular throughout China; wormwood, peunroyal, elder-flowers, pansies, jasmine, peony-flowers, Japanese sophora, &c., being used for these.

VEGETABLE JUICES have been used by the Chinese physicians for centuries. Among these are the freshly-depressed juices of wormwood, portulaca, radishes, and of nelumbium speciosum.

The most popular remedy among those of animal origin is a glue prepared from the hide of the black ass (*N' go-kiuo*). This glue must be prepared in a prescribed manner from the water of a celebrated well in the neighbourhood of *N' go-Hein*, which is said to be in communication with a subterranean lake, and is by the Government opened only from November to March. The glue (gelatin) is found in the markets in the form of small tablets, upon which the name and residence of the manufacturer is stamped in gold letters. It is largely sophisticated by glue obtained from other sources.—*Am. Practitioner*.

SOUTH LONDON SCHOOL OF PHARMACY.

ON Wednesday, the 7th inst., the formal opening and distribution of medals took place at the South London School of Pharmacy.

The Secretary, in performing the duty of presentation, took occasion to say that in another place, viz., the School of Pharmacy at Bloomsbury, the inaugural address would be read to the students on the same evening. He would take this opportunity of saying that the South London School was in no way behind the older institution, except in so far that the latter had the prestige of having been originally established by the Pharmaceutical Society. Now, however, he understood that the Bloomsbury School no longer belonged commercially to the Society, and in this way the two schools were so far upon an equal footing. He hoped this would give a healthy feeling of emulation in producing students worthy of their calling and the institutions where they had been instructed. As for this School, a new laboratory had been fitted up, at a cost of over 1,000*l.*, upon an entirely new principle, complete in every respect for the attainment of a thorough acquaintance with practical chemistry, and that, coupled with the special facilities provided in other departments would, he hoped, not only render them good pharmaceutical chemists, but also practical analysts and microscopists. The sure and only road to success was diligence, coupled with obedience to the instruction of their teachers, especially to their chief lecturer, whose powers of teaching and lucid demonstrations were admitted by all who had sat under him to be unrivalled, and to which the great success of the School had been mainly due. He would read them some statistics of the School for the past session, which would show how fast it was becoming a great centre of chemical education, because the true test of an educational establishment was the number of students who qualify under its care:—

Passed the Pharmaceutical Society's Examination:—

Minor	265
Major	10
Modified	9
Total passed	284
Purely Analytical Students	8
For Medical Officers of Health and Food Analysts	6
Total	298

The average time of students who attended the school laboratory had been during last session 3.8 months.

In conclusion he reminded the students that earnest work was required, and that they should not be content until they had climbed to the top of the tree and gained the fullest knowledge and highest qualifications by means of the *full* ten months' course of study now provided by the South London School for all who could spare the time.

Bronze medals were then presented to Mr. Cumine, Southport; Mr. Fowler, Torrington; Mr. Webb, Chester; and 7 certificates of merit to other students. The herbarium prize of 5*l.* was presented to Mr. James Epps, Loudon.

Medical Gleanings.

The addresses to students at the various medical schools invariably and unavoidably bear a strong family likeness. There are two set patterns for these speeches, into one or the other of which most of them more or less accurately fit. Either the address is a glorification of the profession as an intellectual study and a labour of love to an ungrateful world, or it follows the thoughts of Longfellow's "Psalm of Life," and students are urged and encouraged with the now familiar eloquence to spend their days in emulating the worthy examples whose memories surround the schools where they are to study.

The chief interest this year attached to the address at Guy's, which was to be delivered by Sir William Gull. Many hundreds more than could enter the theatre of that old hospital went to hear the popular physician, and the authorities decided to adjourn to the great hall of the Bridge House Hotel. The address was a very able one; and what was particularly noticeable about it was that, in contradistinction to the tendency towards a refined scepticism which has marked some of Sir William Gull's previous utterances, there was manifest through the whole of his oration the desire to suggest a faith which science will never demonstrate, but which it may at least reverence.

"It is a common error with young students," said Sir William, "to think that it is only by some strong intellectual effort that good work can be done; whereas, in truth, it is more through patient and well-directed labour. If the first lesson be patience—a patience which knows how to work and wait, undismayed by what seems to be insuperable, such a patience as even Newton required and practised when he tells us that he learned to keep a subject before him, and to wait until by slow degrees light dawned upon it—the next lesson is docility, a readiness to learn at any source, not fastidiously or delicately, not where it may please us, but wherever the facts lie hid; remembering that to the pure all things are pure; and that, in the investigation of truth, there is no high nor low, no great nor small; that, to use a common simile, like the rays of the sun, the rays of science enter alike every place."

Referring afterwards to what else the student ought to regard as his aims in life besides his direct work, the speaker pointed out that his studies "should range from the 'atoms that make the textures to the hopes that make the man.'" Scientific progress is not yet so far advanced that a complete theory of man can yet be given. However much we may know of oxygen, hydrogen, and carbon, there is a vast deal more in them that we do not know. Doubtless, the teachings of science are full of hope and belief. It is only when we think its work is so far done that we can see the end of it that disappointment comes in, and with it a conflict between our instincts and the supposed reality. Hope and belief are the necessary supplements of imperfect knowledge. Without them we should deprive ourselves of the best motives and surest grounds of action.

In those sentences Sir William Gull has given a worthy rebuke to the cynical conceit which has taken possession of many scientific workers, and which was particularly manifest in Tyndall's recent address at Belfast.

* *

The established medical bodies of the kingdom scarcely reckoned on the pertinacity of their opponents when they attempted to close the portals of medical practice in England to women. Those who see in certain branches of the healing art a most proper and important employment for an educated class of ladies will be glad to know that a school of medicine for women commenced its first session on October 12 at 30 Henrietta Street, Brunswick Square. The lecturers, so far as we are at present aware of the appointments, are the following:—Dr. King Chambers, "On the Practice of Medicine;" Mr. Berkeley Hill,

"On Surgery;" Mr. A. T. Norton, "On Anatomy;" Dr. Sturges, "On Materia Medica;" Mrs. Garrett Anderson, "On Midwifery;" Mr. Critchett, "On Ophthalmic Surgery;" Dr. Cheadle, "On Pathology;" Mr. Heaton, "On Chemistry;" and Mr. A. W. Bennett, "On Botany." The following have, in addition, consented to serve on the Council: Dr. Billing, Dr. Buchanan, Mr. Ernest Hart, Professor Huxley, Dr. Hughlings Jackson, Dr. Murie, Dr. F. Payne, Dr. W. S. Playfair, Dr. Burdon-Sanderson, and Dr. Elizabeth Blackwell. A fair number of students are already enrolled. It is intended to build a detached dissecting-room in the garden attached to the house.

* *

From an article on Hindoo medicine, contributed to the current number of the *British Journal of Homoeopathy*, by Dr. W. B. A. Scott, we extract the following interesting particulars:—

The members of the Vaidya, or medical caste, are supposed to be descended from the virgin-born son of Amba, a favourite servant of the sage Galaba; but possibly the favour she had gained in her master's eyes may lead the sceptical to question whether this was a real case of parthenogenesis. Although the Vaidyas constitute the true medical caste, the Brahmans and Khetreyas also include medicine among their studies, and are permitted to give advice and assistance to the sick, but they are not allowed to receive any money for their services. Nor are other castes excluded from the study of the medical vedas and shashtras; even persons belonging to the humble caste of Sudras are admitted to the privilege if they evince signs of learning and virtue. The greatest reverence is paid to the teacher, who sometimes maintains his pupils at his own expense. Precautions are taken in order to insure that none shall be received as pupils except such as are likely to make a good use of their advantages, and in the rules under this head it is interesting to find a proof of the early attention paid by the Hindoos to physiognomy—or physiognomony, as it ought to be called. The moral and intellectual desiderata being that the pupil should be inquisitive, observant, philanthropical, generous, amiable, cheerful, and not covetous, envious, or indolent: these inward mental graces are to be typified by the outward and visible signs of an "agrecable voice, small tongue and eyes, straight nose, thin lips, short teeth, and thick hair." Various religious ceremonies are performed on the day of the pupil's matriculation, and the latter solemnly renounces anger, covetousness, falsehood, licentiousness, cruelty—in fact, "all the works of the world, the flesh, and the devil." In addition to this, the pupil vows implicit obedience to his teacher, the practice of a voluntary and even ostentatious humility, and also that neither his beard nor his nails shall be cut during the period of his studies. When the novice's studies have been successfully completed, he receives the Rajah's authority to practise.

There are certain omens which the physician is directed to observe. For example, it is held to be a bad omen if any person sneezes; if lizards are seen by the physician on leaving the house; or if corpses, jackals, or vessels of water are seen on the left. If the physician on quitting his patient should meet anyone carrying a vessel of water, fruit, or butter, the sick person will die. On the other hand, it is esteemed an auspicious sign if the physician "comes in with the milk," i.e., arrives along with the milk-carrier. Much attention is also paid to dreams, as well those of the physician as those of the patient—in the latter case not without propriety. Favourable and unfavourable indications are also drawn from incidents relating to the messenger sent for the physician, his character, acts, appearance, dress, the hour at which he arrives, &c. Certain days are esteemed lucky and others unlucky for administering, preparing, and collecting drugs, commencing medical studies, &c.

The physician is carefully to observe the person of his patient, in order to observe whether he has the signs of longevity, which are supposed to consist mainly in the existence of a certain proportion between the limbs, chest, neck, &c., but other indications are not overlooked. The most favourable signs are long arms and fingers, long ears, large eyes, forehead, teeth, mouth, trunk, hands, feet, and shoulders, short and fleshy legs, short neck, a large space between the mammilla, deep navel, well-formed joints, good voice, long respirations, and vigorous intelligence.

The rewards to which the physician is entitled are said to be "money in the case of the rich; friendship, reputation, increase of virtue, prayers and gratitude in that of the poor."—Wise, *Hindu System of Medicine*, p. 29. He is to accept no fee from a Brahman, a relative, or one who has no relations, and he is not to administer any remedies whatever to *hunters and great sinners*. The generosity apparent in these injunctions descended in ample measure to the earlier Greek physicians, however lamentably it may have declined among their unworthy successors, but the implied condemnation of the chase could hardly be expected to find any response from a nation which venerated Diana as a goddess and Meleager as a hero.

**

The Hospital Saturday movement is not a very perfect exemplification of the "Charity which vaunteth not itself." Whatever may be the amount collected by the promoters of this demonstrative exhibition of the benevolence of London artisans, we cannot congratulate them on the good taste or refined feeling indicated by their method of procedure. Long processions and a monster meeting in Hyde Park, expressly intended to proclaim to the world the generosity of the working classes in this matter, may well enough be dissociated from the forms of the religion which teaches us to do our alms in secret. But is working men feel so strongly impelled to deeds of charity, it is a pity that they cannot exercise that virtue quietly along with the rest of the nation on the Sunday which by common consent has been set apart for such contributions. In truth, the wish to do some good seems to us to be the weakest of the motives which have prompted the Hospital Saturday movement. Glorification of themselves seems to have been the chief object, a backhanded and most inappropriate slap at the church and chapel-going givers has also had force, and lastly, it would appear that in some minds there is a thought that by thus contributing to the funds working men will have earned for themselves a sort of right to the benefits of the hospitals, as though the latter were just provident dispensaries and nothing more.

Literary Notes.

A NEW and very comprehensive catalogue of druggists' sundries, shop fittings, surgical instruments, &c., has just been issued by Messrs. Lynch & Co. The book contains some 300 pages, divided into several parts, each of which has been carefully and copiously indexed. The illustrations are abundant and handsome. In their address, Messrs. Lynch & Co. intimate that they expect shortly to remove to larger warehouses, in order to meet the necessities of their growing business.

Messrs. Cassell, Petter & Galpin have recently commenced the production of a series of "National Portraits," executed by a new process, which for truth and expression far surpass any likenesses we have seen. Six parts of this admirable work have been issued, each containing the portrait of an English celebrity, with a biographical sketch. Gladstone, Disraeli, Bright, Earl Derby, Chief Justice Cockburn, and the Archbishop of Canterbury are the subjects already chosen. Messrs. Cassell's "Portrait Gallery" will doubtless win a permanent place in our periodical literature, and it is certainly to be hoped that the miserable caricatures of our eminent men which have been too

popular of late will recede before these remarkable likenesses. The memoirs, we should add, are well-written biographies, not without critical ability. The remark, for instance, that our present Prime Minister owes his extraordinary success to "a gigantic and justifiable self-appreciation," strikes us as particularly true and forcible.

BRING DEAD, SPEAKETH.—An American journal, called the *Druggist*, gives the honour of its first page in a recent issue to the account of "an interview with Dr. Muspratt." The writer states that he has "the honour of a personal acquaintance" with the eminent chemist, who, he informs us, is editing a most elaborate work upon "Chemistry as applied to Arts and Manufactures." Pretending to have it from his own lips, the interviewer gives quotations from some of Muspratt's writings on disinfectants, and concludes with the following astonishing announcement:—"The subject is of so vast importance, and Dr. Muspratt's communications upon it are so lucid and useful, that we will seek another interview with him." We should like to break the news gently to this intolgent writer and personal friend of Dr. Muspratt's, but he will have to learn one day that his dear friend has been dead now for nearly four years.

Provincial Reports.

GLASGOW CHEMISTS AND DRUGGISTS' ASSOCIATION.

THE opening meeting of the twentieth session of this Society was held on September 30, in Anderson's University, the President, Mr. John Currie, sen., Ph. C., presiding.

A selection of books, being first instalment for the library, were exhibited, including Watts' "Dictionary," five volumes and supplement; and several volumes of Fowne's "Chemistry," Bentley's "Botany," Thorpe's "Quantitative Analyses," Sutton's "Volumetrical Analyses," Royle's "Materia Medica," &c.

Several new members were proposed and introduced to the meeting.

The President delivered his inaugural address on "Some Present Aspects of the Trade." Mr. Currie first referred to the position of the Society, pointing out that while we had cause to be gratified at the amount of progress we had made lately, there was still room for further improvement. The students had now advantages which a few years ago they had not in this city; there was a good library of reference, a Materia Medica cabinet and microscope, as well as other advantages in lectures, classes, &c., which he hoped those preparing for their examination would take full advantage of. He also referred to the price list issued by the Association some few years ago, which had met with such general approval by the whole trade in the West of Scotland. He hoped that the increased tariff it had established, as well as the unanimity with which it had been acted upon in this district, would hasten the time when we should have a uniform list for the kingdom. The President then spoke of the difficulty in getting good assistants, as well as procuring young lads with sufficient educational qualifications to enter the trade at all. He attributed this state of matters partly to fear of the examination, on the one hand, and the many inducements held out recently in other branches of industry, where higher remuneration could be had with less study and shorter hours of work, on the other. He thought, however, that as trade generally assumed a more settled state than at present, and when our business should be looked upon by the public as more respectable and honourable than many others, these difficulties would be overcome. He then urged those young men who had connected themselves with the trade not to be discouraged, for by mastering thoroughly the details of the business, passing the required examinations, and by diligent and prudent management, they might realise, if not a fortune, at least an honourable and comfortable living.

After a few remarks from Mr. Kinninmont (one of the Board of Examiners), refuting the idea that the examinations would be more difficult to pass by the new regulations, Mr. Currie received a hearty vote of thanks for his address.

A committee was afterwards appointed to arrange for classes for the apprentices and students, and Mr. J. M. Fairlie (secretary) gave a brief sketch of the proceedings of the Pharmaceutical Conference meeting, held at London in August last, urging the members to join and prepare themselves to give the Conference a hearty reception in 1876.

THE LIVERPOOL CHEMISTS' ASSOCIATION.

THE annual meeting of the 25th session was held at the Royal Institution, September 24, 1874, the President, Dr. Charles Symes, in the chair. The minutes of the previous meeting were read and confirmed. The donations to the library, &c., which had accumulated during the recess were announced. Mr. Edward Pritchard was elected an associate.

The Hon. Sec. then read the annual report, in which the Council drew attention to the fact that the Association had now completed the first quarter of a century of its existence, and the Council considered that the character which it had established during that period would enable it to bear favourable comparison with any society of a similar nature and with a kindred aim. It had not been free from fluctuations, but had had, on the whole, a successful career, and they trusted that its future might be even more prosperous than its past.

During the past session 13 members and 3 associates had been admitted, and this made the members at present on the books 155, comprising—honorary members, 14; members, 125; associates, 16.

The report then went on to comment on the proceedings of the past session, and especially remarked that the Council had done all in their power to promote pharmaceutical education and the welfare of the students. Not only did they cause a special meeting to be held, at which students were invited to come forward and say what they required in this matter, but also a meeting of the Association was purposely given to them, at which Dr. Symes read a paper on "Study," and Mr. Jas. T. Armstrong, F.C.S., read another on "Pharmaceutical Education." The Council greatly regretted that all this had been in vain.

The Treasurer's report showed a deficit of 5*l.* 2*s.* 9*d.*, notwithstanding that the session commenced with 6*l.* 2*s.* 7*d.* in hand.

The President moved the adoption of the report, which was carried unanimously.

Votes of thanks were moved to the contributors to the library and museum, and to the officers of the Association during the past session, which were acknowledged.

The ballot being taken to fill up the vacancies in Council, the retiring members, Messrs. Abraham, Redford, Shaw and Sumner, were re-elected by a large majority.

With a vote of thanks to the Chairman, the business was concluded.

LIVERPOOL SCHOOL OF PHARMACY.

THE following arrangements have been made for the ensuing session:—

Chemistry, by Mr. W. McCowan, late Young's Bursar, Andersonian University, Glasgow, under the direction of Mr. E. Davies, F.C.S., Lecturer on Experimental Physics, Queen's College. Lectures on Inorganic Chemistry, Preparation of Chemical Products used in Pharmacy, Qualitative and Volumetric Analysis. Each lecture will be followed by questioning upon the previous lecture, and will be illustrated with experiments. The course commenced on Thursday, October 8, from 8.0 to 10.0 a.m., and will be continued on successive Thursdays until the end of March, 1875, at the Laboratory, 17 Back Colquitt Street (off Seel Street). Fee for the course, one guinea.

Pharmaceutical students are received at the Laboratory for the study of Practical Chemistry, at any hour between 9 and 5 o'clock. Fee, one guinea and a half for three months, two hours per week.

The Council hope to make arrangements for holding classes in Materia Medica and Botany during the spring and summer months, particulars of which will be duly announced.

BRISTOL.

THE annual meeting of the Bristol Pharmaceutical Association was held on September 7, Mr. Schaech, President, in the chair. The report showed that, besides a series of excellent evening lectures on scientific topics by Mr. Siebold, Dr. Porter Smith, Dr. Watts, Mr. Wills and Professor Redwood, the following results had been attained in the educational classes. Inorganic Chemistry (Mr. Coombe), 17 entered, 15 presented themselves

for the government examination at the end of the session, and 13 passed. Ten also satisfied the examiner, Dr. Frankland, as to their knowledge of laboratory practice. Organic Chemistry, 7 entered, and 3 presented themselves for the government examination, all of whom passed. Botany (Mr. Leipner), 11 entered, 9 offered themselves for examination, and 3 passed. Materia Medica (Mr. Stoddart), 12 entered and 8 competed in an examination, the papers for which were kindly supplied by Professor Bentley, and the estimates also adjudicated by that gentleman. The fees for these lectures (12 guineas) Mr. Stoddart had generously added to the Library and Museum Fund, thus making 37*l.* in all which in this way he had contributed to that object. The Association awarded prizes to the following students:—Mr. Charles M. Luxmoore, for Elementary Inorganic Chemistry; Mr. Thos. W. Hall, for Advanced Inorganic Chemistry; Mr. Charles M. Luxmoore, for Elementary Organic Chemistry; Mr. Frederick Stamps, 1st for Elementary Botany; Mr. Charles J. Miles, 2nd for Elementary Botany; Mr. Cuthbert Powell, 1st in Materia Medica; Mr. Alfred H. Higgs, 2nd in Materia Medica. It was also announced that Mr. T. H. Hills, President of the Pharmaceutical Society, had placed the sum of ten guineas at the disposal of the Council for distribution in prizes as the Council should think fit. In distributing the prizes, which consisted of scientific books, Mr. Schaech remarked that they were given, not so much as rewards for diligence—which might be right when managing children, but wrong when dealing with young men—as signs of the hope that in the successes they were destined to achieve in after-life they would always be able to look back to the studies of the present time with gratification and pleasure.

Mr. Stoddart supplemented the donations of the Council by some further gifts of his own, and bore warm testimony to the attention and courteous bearing of every member of his class, and said he rejoiced in the thought that he had secured them all as personal friends.

NORTHAMPTON.

THE Northampton Pharmaceutical Association opened its session on September 25. The report mentioned the satisfactory, and we may add, remarkable, fact that all the assistants and apprentices in Northampton were members of the Association. Classes in botany, Materia Medica, practical and theoretical chemistry and pharmacy had been held, and since last session four members had passed the Preliminary, three the Minor, and one the Major Examination, the latter being first in honours. Instructive and interesting papers had also been read at the evening meetings. The expenditure of the Association during the year had amounted to about five pounds, and the financial statement showed about an equal sum in hand. Mr. Hester, president, and Mr. Druce, secretary, explained the position of the Association; the latter congratulating the members that their enterprise had ended neither in smoke nor smoking.

BURNLEY.

CHEMISTS AND DRUGGISTS' ASSOCIATION.

THE annual dinner of the above Society was held on Thursday evening, the 1st inst., at Rawlinson's Hotel. The company numbered twelve; the ex-President (Mr. Thomas) occupying the chair.

Mr. Fletcher proposed "Success to the Burnley Chemists and Druggists' Association." He hoped the time would soon come when the special disadvantages which the Burnley chemists had to contend against would receive attention from the trade at large and would be entirely removed.

The President (Mr. Crawshaw), on responding to the toast, contrasted the past good old days with the present condition of pharmacy. He believed the Pharmacy Act of 1868 had improved the position of each one connected with the trade he urged the Society to work harmoniously, casting aside selfish prejudice, and hoped the chemists in the surrounding districts would unite, and so benefit all.

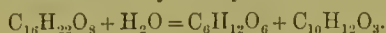
Scientific Notes.

RESEARCHES ON CONIFERINE. ARTIFICIAL FORMATION OF THE AROMATIC PRINCIPLE OF VANILLA.

By MESSRS. F. FREINAUN AND W. HAARMANN.*

THE cambium of coniferous plants contains a glucoside of a well marked crystalline character, viz., coniferine, discovered by M. Hartig, and studied more recently by M. Kubel, who gives to it the formula $C_{21}H_{32}O_{12} + 3H_2O$.

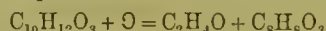
A close examination of this substance leads us to represent it by the formula $C_{16}H_{22}O_8 + 2H_2O$, which closely approaches in value the figures obtained by M. Kubel. Submitted to the action of a ferment, emulsion for example, coniferine breaks up into glucose and a body crystallising in beautiful prisms which fuses at $73^\circ C$. This last substance is freely soluble in ether, less so in alcohol, and almost insoluble in water; it contains $C_{10}H_{12}O_3$. Its formation may be expressed thus:—



Under the influence of oxidising agents, this product undergoes a remarkable change. On heating with a mixture of potassium bichromate and sulphuric acid, ethylic aldehyde is first disengaged, and afterwards an acid body soluble in water, which may be separated by agitation with ether; by evaporation the ethereal solution deposits groups of radiating crystals, which fuse at $81^\circ C$. These crystals have the taste and odour of vanilla. A comparative examination shows, in fact, that they are identical with the aromatic principle of vanilla, which is frequently noticed on the peds in the form of delicate needles. According to our analysis the body thus obtained by oxidation contains $C_8H_8O_3$.

This is precisely the composition which the recent researches of M. Carles give to the aromatic principle extracted from vanilla.

The transformation of the body produced by fermentation into vanilline is represented thus:—



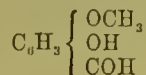
To remove any doubts there may be as to the perfect identity of artificial vanilline with the natural body, we have prepared from it a series of salts of the general formula $C_8H_7NIO_3$; also two substitutive products, $C_8H_7BrO_3$ and $C_8H_7IO_3$, which M. Carles has studied by means of the natural principle.

In order to unmask the nature of vanilline, we have fused it with caustic soda. The product of this action is proto-catechuic acid, $C_7H_6O_4$, discovered by M. Strecker.

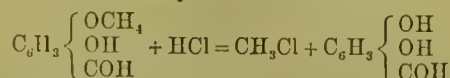
We have identified this body by analysis, by the study of its reactions and by transforming it into pyrocatechine, $C_6H_6O_2$, by the abstraction of a molecule of carbonic acid,



The conversion into proto-catechuic acid fixes the constitution of vanilline; this compound is the methylic aldehyde of proto-catechuic acid, whose molecule on the benzene type is represented by the formula,



In effect, when submitted to the action of hydrochloric acid under pressure, vanilline is decomposed into methylic chloride and proto-catechuic aldehyde,



An analogous reaction takes place with hydriodic acid, but in this case the aldehyde undergoes more complicated changes.

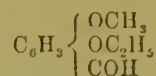
We have obtained further proof of the correctness of our view by the action of acetic anhydride and of benzoyl chloride respectively on vanilline. The prolonged action of these reagents has produced only the bodies,



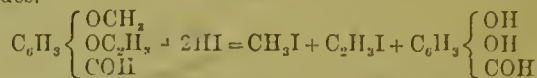
demonstrating in an irresistible manner that the vanillic molecule encloses only one hydroxylic group.

The constitution of vanilline being elucidated, one can no longer doubt what is the structure of the fermentation product

which gives vanilline by oxidation. This body is the ethylic ether of vanilline,



This formula explains the disengagement of ethylic aldehyde during the fermentation of vanilline. It affords besides an incontestable confirmation of our view. By treating, under pressure, the fermentation product with hydriodic acid, alcoholic iodides are produced in notable proportions. These may be separated by convenient methods into methylic and ethylic iodides.



In concluding, we may be permitted to express our acknowledgments to M. A. W. Hoffmann, in whose laboratory the work has been done, and whose advice we have had from beginning to end.

EXPLOSIVE MIXTURES.

An interesting communication was recently made to the Detroit Academy of Medicine by a corresponding member. The fact stated were as follows: "In preparing a dressing for a contused and lacerated wound of the scalp, I poured into a four ounce bottle about three fluid ounces of olive oil, a drachm of liquefied carbolic acid, and two drachms of glycerine. The vial was duly labelled and corked, and carried about eight miles on horseback to the patient's house. About thirty hours after its preparation, the vial, containing about one-half of the original amount, was standing upon a small table, in a room of ordinary temperature, surrounded by vials and sundry other articles—among them a lighted kerosene lamp—when a gentle explosion occurred, blowing off the top of the vial, and spreading the compound uselessly around, but doing no further damage."

EMULSIONIZING HOFFMANN'S ANODYNE.

MR. WILDER (Philadelphia) writes thus in the *American Journal of Pharmacy*:—

A few days ago, I received the following prescription:—

Hoffmann's anodyne	3ii.
Acacie pulv. .. .. .	..
Sacchar. alb.	aa 3ii.
Aquæ	3i.

Never before having had to make a similar mixture, I had my doubts about its feasibility; at any rate, I would try. The old mortar process having failed (not to mention that no inconsiderable part of the anodyne volatilizes before the mixing can be done), I tried the bottle process of Mr. Forbes (*American Journal of Pharmacy*, 1872, p. 61). For some reason or other I did not succeed, probably for want of dexterity. Mr. Forbes' process is first to put the liquid to be emulsionized in the bottle then a small quantity of powdered gum, shaking well, and then water.

At last I hit upon the following:—

I put in the bottle—

Mucilag. acac. (U. S. P.)	33ii.
Water	15vi.
Hoffmann's anodyne.. .. .	33ii.

and agitated violently; a milky mixture, without any separation of gum, resulted. At last I added the sugar, 3ii. Instead of the prescribed 3ii. acacia, I took only 48 grains.

You will see that I only followed the old, very old rule, for making emulsions. Make the mucilage of about "the same consistence as the liquid to be emulsionized."

POWDERING CHLORATES.

The powdering of chlorates is usually effected in a mortar the salt being kept moist by alcohol. To obtain larger quantities of chlorate, in the form of powder, suitable for coloured fires, A. Gawalowski proposes to dissolve the chlorate in hot water, to complete saturation, and to dip into the solution plate of glass, which, on being removed, become covered with a fine crystalline powder of the salt, which is readily collected upon paper and dried, without the least danger to the operator.—*Journ. f. pr. Chem.—American Journal of Pharmacy*.

PRECAUTIONS AGAINST PHOSPHORUS POISONING.

The essential measures for preventing the evils arising from working in phosphorus are:—1. To forbid the dipping or mixing of the phosphorus compound in any loam to which the great body of the workers have access. 2. To forbid the taking of meals without washing the hands or in any room

* *Journ. de Pharmacie d'Anvers*, Juillet 1874, p. 295.

save that used for cutting wood. 3. The hanging of cloths soaked in turpentine. 4. The exclusive use of amorphous phosphorus, the red powder made by exposing common phosphorus to a heat of 400 degrees for some weeks. This preparation is used by Messrs. Bryant & May for their safety matches.—*Sanitary Record*.

THE PREPARATION OF MEDICATED WATERS.

MR. JAMES RUAN suggests in the *American Journal of Pharmacy* the employment of chemically pure filtering paper reduced to a pulp, as a substitute for carbonate of magnesia, in the preparation of such medicated waters as need this substance to aid in the suspension and diffusion of the essential oil. Mr. Ruan finds the paper pulp produce a beautifully bright water, with the flavour of the oil well developed.

STAINLESS TINCTURE OF IODINE.

THE *Medical and Surgical Reporter* says that if a few drops of phenic acid be added to tincture of iodine the latter will not stain; besides, it is rendered more efficacious and certain. The following formula is useful in injections:—

Tincture of iodine	3 grammes.
Phenic acid	6 drops.
Glycerine	30 grammes.
Distilled water	150 grammes.

QUININE PILLS.

MR. H. P. REYNOLDS (*American Journal of Pharmacy*) gives the following formula:—

Sulphate of quinine	600 grs.
Tartaric acid	100 grs.
Glycerine	75 minims.

He says this makes a beautiful mass, not crumbly as when glycerine is used alone; but the operator must be careful to use exactly the quantity of glycerine ordered, and work at it until it comes right. A few drops more make the mass sticky.

QUICK PREPARATION OF MERCURIAL OINTMENT.

M. BAYLE (in the *Journal de Chimie Medicale*) recommends the following process:—"Place in a mortar 100 grammes of mercurial ointment already made. Add to this 500 grammes of quicksilver, and while actively rubbing, pour in little by little 30 grammes of sulphuric ether. In a few minutes the metal is divided into imperceptible globules. Now add 100 grammes of lard, and after a few minutes of vigorous trituration the whole will be found incorporated. If a few globules should still remain it will be necessary to add a few drops more ether. The necessary quantity of lard is then to be added, and the ointment will be complete.

ON A METHOD OF ESTIMATING BISMUTH.

MM. BUISSA AND FERNAY.*

This method is especially applicable to the estimation of bismuth sub-nitrate. 0.5 grammes of the salt is dissolved in a few drops of nitric acid and diluted with a little water; bi-carbonate of sodium is added until a slight precipitate remains on stirring; this precipitate is re-dissolved by acetic acid in such excess that no precipitation occurs on subsequent dilution with water; the liquid is then heated to the boiling point and filtered to separate iron and oxychloride of bismuth if any be present. The filtered liquid is made up to 250 c.c., by 25 c.c. of iodic acid and water. After agitation and repose the liquid is again filtered. The amount of iodic acid left in 100 c.c. of the filtrate is then ascertained by adding dilute sulphuric acid and iodide of potassium, and determining the liberated iodine by a standard hyposulphite solution. The data obtained are sufficient for calculating the amount of iodic acid removed by the sub-nitrate of bismuth, and, therefore, the amount of the latter salt which was present in the sample.

The reagents must be free from chlorine.

The iodic acid solution is prepared by dissolving 30 grammes of crystals of iodic acid in 1,000 grammes of water, and titrating with pure bismuth.

THE PREPARATION OF CANTHARIDINE.

M. GALIPPE.†

M. GALIPPE macerates the finely powdered cantharides in acetic ether for 24 hours, and then percolates. The process is repeated with fresh ether until it runs away scarcely coloured green. It is best to perform the whole operation in a stove heated to 35°

centigrade. The acetic ether is mostly recovered by distillation, and the residue is left to crystallise. To free the crystals entirely from green fatty matter they should be washed in a very little carbon bisulphide: to produce them quite white, dissolve in acetic ether, decolorise by animal charcoal, and again crystallise.

ON THE PREPARATION OF PENCILS OF NITRATE OF SILVER.

By M. BOUILLON.*

PENCILS of nitrate of silver, as met with in commerce, are variable in colour and in composition. They are black, from oxide of copper; grey, from reduction of silver during fusion; and bluish, from the action of light on a small amount of chloride of silver, the presence of which is due to the use of commercial nitric acid. These pencils are generally very friable, a fault which becomes very grave when they are to be used at the back of the throat, for example, for they are liable to break at a very slight touch. To obtain good nitrate of silver pencils the following process is recommended:—

Place about 20 grammes of pure nitrate in a porcelain capsule, with 5 or 6 grammes of distilled water, and about 1 gramme of pure nitric acid. Apply heat to the centre only of the capsule until the water and acid are expelled, and the salt commences to fuse. The heat employed must be very moderate, and any crusts of salt that form on the sides of the capsule should be removed by means of a glass rod. As soon as about three-fourths of the salt is in a state of fusion, pour immediately into a perfectly clean copper mould. The pencils obtained are of a dead white colour and of a solidity and toughness which leave nothing to be desired.

Fragments may be worked up as before, care being always taken that the heat applied is not sufficient to cause perfect fusion.

ON THE USE OF CHARCOAL FOR DEPILATION.†

M. ANDERSEN has observed that powdered wood charcoal possesses the power of removing hair from skins, and he attributes this power to the oxygen condensed in the pores of the charcoal; this oxygen causing the combustion of the fatty matters found in the capillary glands. The experiment may easily be made by plunging a piece of skin furnished with hairs into a pap of powdered wood charcoal and water: after four or five days the hair is completely removed. The only inconvenience attending this use of charcoal is that it does not cause the skin to swell, and so facilitate the cleansing of the inner surface; this defect may be remedied by first steeping the skin in a weak milk of lime. It is said that skins prepared by this process furnish a more durable leather than those prepared in the ordinary manner. At a temperature of 15–20° the process requires four to five days; at 5–10° centigrade seven or eight days are necessary. The charcoal process is thus more expeditious than the ordinary one; it demands, besides, less manual labour, the work is more salubrious, and the product better. A further consideration is that the tanning of skins after depilation by charcoal is better and less tedious than that of skins which have been long subjected to the action of lime, for the lime penetrates the tissues and delays the process by neutralising part of the tannin.

The process was patented in England and in France in 1871 and 1872.

HYDROBROMATE OF QUININE.

In the *Journal de Pharmacie* for September, M. Brille draws attention to the superiority of neutral hydrobromate of quinine over the neutral sulphate of the same base in respect of solubility in water and richness in quinine. The hydrobromate is prepared by pouring an alcoholic solution of official sulphate of quinine into a similar solution of bromide of barium until a precipitate ceases to be formed. The filtered liquid is diluted with water and the alcohol recovered by distillation. The aqueous residue is again filtered to remove excess of sulphate of quinine, and, finally, concentrated and set aside to crystallise. This neutral hydrobromate is soluble in five times its weight of water. Its greater solubility and richness in quinine than acid sulphate enables it to be used with advantage in the place of the latter in liquid preparations, without producing the least irritation of the mucous membranes. In its action the effects of bromine are added to those of quinine.

* *Journ. de Pharm. et de Chemie*, Septembre 1874, p. 212.

† *Journ. des Conn. Med.*

* *Journ. de Pharm. et de Chemie*, Septembre 1874, p. 210, from *L'Union Pharm.*

† *Journ. de Pharm. d'Anvers*, from *Chemisches Centralblatt*.



"BRITISH PORT."

JOSEPH BENNETT, confectioner, Norton Folgate, was summoned last month at the Worship Street Police Court, under the Excise Act, for selling wine.

Mr. Vann put in the refreshment license held by the defendant, and said that he was licensed also to sell British wines, such as orango wine, ginger wine, &c., and the "British port" mentioned, it was contended, came within the category of wines allowed.

Mr. Bushby asked what was "British port," for he had never heard of it. If it was a concoction made in England and a wine sold under the name of port, he thought it was an intoxicating liquor, and an evasion of the law.

Mr. Vann stated that the defendant's refreshment license was to sell sweets, and the wines, he thought, were a liquor which came within that meaning. The defendant, he said, had no desire to infringe the law.

Mr. Bushby said that he could not, by any stretch of argument, admit "British port," whatever it was, to be a "sweet." He was told that it was sold at 2d. a glass, but nothing more horrible than such a decoction could be imagined. He thought the case a most barefaced evasion of the law, and ordered the defendant to pay a fine of 40s. and costs. By the Act of Parliament the magistrate was also compelled to endorse the conviction on the license, and he told the defendant that a second offence would render him liable to a fine of 20l.

CLARKE'S BLOOD MIXTURE.

HERBERT CLARKE, of High Street, Shoreditch, whose offence against the Inland Revenue laws we reported last month, has been again prosecuted, this time by Mr. Clarke, of Lincoln, who alleges that defendant has infringed his trade mark by copying the style of his advertisements, wrappers, stamps, and signature. The case came on at the Worship Street Police Court on September 19, before Mr. Bushby. Samples of the medicines were shown to the magistrate. Defendant had represented himself as Davis, and had denied being the Dr. Clarke sought for.

Mr. John Morgan Davis gave evidence that the business was really his. Some four years ago he had sold it to defendant, but as the money had not been paid he had recently resumed possession. The defendant, he said, was Mr. Clarke.

The witness was cross-examined by Mr. Salamon as to the genuineness of the transaction, and whether it was a sham sale or not, but he refused to say what the terms of the sale were, how much he got, or how the money was secured.

Mr. Bushby thought it curious, and said that he could not withdraw the case from a jury. It did not seem to be altogether clear. The defendant was then fully committed for trial.

.

A public apology has since been made by the defendant, a copy of which will be found among our Advertisements (page 5).

THE CHEMIST IN FAULT AGAIN.

In a case investigated at the Marylebone Police Court on September 21, before Mr. D'Eyncourt, respecting a servant-maid who had endeavoured to commit suicide, the magistrate expressed an opinion respecting the sale of poisonous substances to children. The servant, it appeared, had sent her little brother, a child of twelve, to Mr. Wimblush, chemist, 195 High Street, Camden Town, for a pennyworth of white copperas. She said she wanted it for her eyes, but the reports do not mention whether this was told to the chemist. Mr. D'Eyncourt remanded the prisoner for a week, remarking that chemists had no right to supply children with poison.

LONDON BANKRUPTCY COURT.—OCTOBER 7.

(Before Mr. Registrar Roche.)

(BY OUR OWN REPORTER.)

IN RE GARMAN & GARMAN.

THE debtors, carrying on business in Roman Road, North Bow, and Appian Place, Old Ford Road, as chemists and druggists, had presented a petition for liquidation by arrangement or composition, and the meeting of creditors took place on September 21, when it was determined to liquidate by arrangement, not in bankruptcy; the Rev. John Atkinson, of Claremont House, Victoria Park, and Mr. Richard Warner, wholesale druggist, 20 Charterhouse Square, being appointed trustees. The debts were returned at 675l., and assets 342l. Mr. Brooks now applied for leave to register the resolutions. It seemed that certain small creditors had not been served with notice of the meeting, but the validity of the resolutions was not thereby affected, and some other formal objections having been disposed of, His Honour allowed registration.

The following appear in the list of creditors:—Gabriel & Troke, 82 City Road, 20l. 4s. 4d.; Warner & Co., Charterhouse Square, 296l. 4s. 6d.; G. Walker, druggist, Upper Ground Street, Blackfriars, 19l. 8s. 8d.

IN RE GEORGE GAGE.

THE debtor was a chemist and druggist, of Market Hill, Luton, and Market Place, Dunstable. At a meeting held under his liquidation proceedings on September 18, resolutions were passed authorising the trustee (Mr. F. Nicholls, accountant, Old Jewry Chambers), to sell the debtor's estate to Mr. William Harris, of the Holly Farm, Feltham, Middlesex, for a sum sufficient to pay all the creditors 20s. in the pound, the purchase money to be paid by two instalments of 10s. in the pound on September 29 and October 28, 1874, respectively, payment being secured by promissory notes.

Obituary.

APPLEBY.—August 23, Mr. Richardson Appleby, chemist and druggist, of North Shields.

BIRRELL.—August 18, Mr. George Birrell, aged 52. Mr. Birrell was for upwards of thirty years the esteemed and valued representative of Messrs. Evans, Lescher & Evans.

CARRAN.—September 12, at Glen View, Peel, Isle of Man, Thomas Carran, aged 59.

CHAPMAN.—August 23, suddenly, Samuel Smith Chapman, dispensing chemist, South Hackney.

EDWARDS.—September 13, at Dartford, Mr. George Edwards, aged 66. Mr. Edwards was a member of the Pharmaceutical Council for twenty-five years, and was twice its Vice-President.

EVANS.—September 14, at Pwllheli, Mr. John Evans, for nearly thirty years the esteemed representative of Messrs. Evans, Sons & Co., Liverpool.

FARRAR.—September 28, Mr. William Farrar, chemist and druggist, of Hartlepool.

HOPKINS.—September 2, Mr. William Freeman Hopkins, chemist and druggist, of Henley-in-Arden.

JEFFERSON.—August 31, Mr. Richard Jefferson, chemist and druggist, of Malton, Yorkshire.

JONES.—August 11, Mr. David Benjamin Jones, chemist and druggist, of Cardiff.

McISAAC.—July 15, Mr. George McIsaac, chemist and druggist, of Edgbaston.

SEARLE.—September 20, Mr. William George Searle, chemist and druggist, of Chorlton-on-Medlock.

WARD.—September 3, Mr. James Ward, pharmaceutical chemist, of Falingham.

WEAVER.—August 27, Mr. Edwin Thomas Weaver, chemist and druggist, of Kandy, Ceylon.



"THE GENEROSITY OF THE HALIFAX CHEMISTS."

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—The letter which appeared in your last issue, signed "Justitia," exhibits as great an amount of ignorance, vanity, and impertinence as any youth of nineteen could be guilty of. It charges a certain number of chemists with a determination to put obstacles in the way of the assistants and apprentices prosecuting their studies. It further accuses them of unjust tyranny and base selfishness, and compares them—unfavourably—with the gutter lads of London. I wish to prove to the readers of your journal that his letter is a total misrepresentation of facts and a gross insult to the chemists of this town.

Very soon after the Amended Pharmacy Act became law, the Halifax and District Chemists and Druggists' Association was formed, and the first subjects taken in hand were the shortening of the hours of labour and the educational requirements of the employes. A botany class was formed and a suitable teacher engaged to conduct it. Our Association guaranteed any pecuniary loss that might ensue—and which proved to be about two-thirds of the expenses—and also offered three prizes at the examination. Interviews were obtained with the Principal of Hales Hill College, and the kind of tuition in Latin and chemistry which would best enable our young men to pass their examinations was pointed out to him: that gentleman responded to the wishes of the committee in a most generous and cordial manner, and undertook personally to conduct the Latin class. Prizes were offered by the College, by our Association, and by private chemists. The local secretary of the Pharmaceutical Society also gave an interesting Paper on the study of *Materia Medica*, showing the youths how to thoroughly master the subject.

And how did the young men respond to these arrangements? Starting with upwards of twenty pupils in the botany class, it dwindled down to five. A medical gentleman undertook to examine the class with reference to the distribution of the prizes offered, and his report will not soon be forgotten. "There is not one of them worthy of a prize; it is the worst examination I ever saw." However, we kept our word to the pupils, and the prizes were distributed. Though the teacher made liberal offers for the continuance of this class, no response has been made by the pupils, and it is now "*non est inventus*." The Latin class results were even more discouraging. The Principal of the College conducted it; we did all we could to persuade the young men to attend; but in spite of all, five was the average attendance. What is even worse still, to make the class more respectable in point of numbers, youths were permitted to join not connected with the trade, and with one exception all the prizes have fallen to the outsiders. A second and third session was tried with worse results, until the class finally collapsed. With regard to the chemistry class the average attendance was three, whilst the *materia medica* class never met again. In the face of these facts "Justitia" writes "that we are attempting to stop all literary progress," and sets us down as base, selfish tyrants. It was painful to see all our efforts prove so abortive; what must it be now, when we are publicly insulted, and untruths flung at us, the very audacity of which is enough to take away one's breath.

Three chemists are specially singled out for calumny. One of these is the principal in whose shop "Justitia" probably penned his libel. He has for two or three sessions paid the fees for "Justitia" at the chemistry class, and is willing to continue the payment as long as he remains an apprentice. In addition he is willing to allow him two hours for study during the day for four days in the week. "Justitia" refuses to attend the chemistry class any more, holding the idea that it does not teach what is most suitable for passing the examination, while Mr. Jarman, F.C.S., who conducts the class, states, "the subjects treated of will be precisely those most requisite to enable an assistant to obtain his certificate." After such kindness could you conceive it possible for a youth

to charge his master with conduct unbecoming, even to the "ignorant gutter lads of London." Another chemist was the honorary secretary at the time these classes were formed, and who laboured earnestly to make them a success, as all his brethren in the trade can testify. But the fact is, that instead of being only three against, there are not three at the present time in the town in favour of closing at 7 o'clock. And in truth the conduct of some of the young men for the last two or three years has been such that it would have proved anything but advantageous to them to have had the extra hour. Our Association is perfectly willing and ready to do all it can to assist the young men in a pecuniary sense by offering prizes, and in any other way that may be opened. But we must see first some signs of a sincere and earnest desire to improve themselves and attend the classes. Only one out of five passed the last Preliminary examination. In conclusion, may I suggest to "Justitia" that in future, before he rushes into print, he should be quite sure that he is thoroughly well up in the case, that there are two sides to every question, and that it is well not to indulge in absurd and silly comparisons. This inflated and bombastic style might go down with his fellow apprentices, but he could hardly be so ignorant as to suppose that the chemists of Halifax would silently submit to it. What possible good did he suppose could result from the tone of his letter. He has failed to better the young men, and has alienated those who might have been brought round to look with more favour upon the views he advocates.

Signed, on behalf of the Halifax and District Chemists' Association,

ROBERT BROOK, Hon. Sec.

Halifax, October 7, 1874.

P.S.—Since the above was written, the assistants and apprentices have formed an association for "educational purposes and mutual improvement." The fee for members is 10s. per annum, but as this would fall far short of maintaining a "newsroom, library, museum, lecture room, and laboratory," the "ignorant, selfish, and tyrannical" chemists are asked to become honorary members and support them by paying 21s. per annum. A more sublime piece of impertinence, or a cooler, refreshing case of impudence I have not come across for some time. Though the letter of "Justitia" is repudiated by the President of the new association in a circular to the chemists, and though the whole body of assistants and apprentices disavow any sympathy with it, no expressions of regret have been heard from "Justitia," and there is nothing left but to forward this letter for publication in your next issue.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—In my letter published in last month's journal, "The Generosity of the Halifax Chemists," I said the deputation were told that three chemists had resolved to resist the movement. This is literally correct, although at a business meeting of chemists there were none in favour of it. We had three signatures on our papers, but they were conditional. As the tone of the letter has caused a great amount of ill feeling with some chemists, I beg to withdraw it *in toto*. I hope this explanation will be sufficient, and that those chemists who have felt insulted will now come forward willingly and heartily to help their assistants and apprentices in promulgating their educational association. I still remain, yours faithfully,

JUSTITIA (*in rebus omnibus*).

Halifax, October 8, 1874.

We are informed that an American company is threatening the substitution of a powdered marble for the whiting now generally employed as the material for the production of carbonic acid gas in aerated waters. They say they can deliver their product at Liverpool for 4l. per ton. We have seen samples of this marble, which is very pure and some of it beautifully powdered. According to the analysis of Professor Chandler, of New York, this marble contains 54 per cent. of carbonate of lime and 44 of carbonate of magnesia. A quarry proprietor, of Frankenstein, Silesia, also advertises in our pages, for the same purpose, magnesite containing 96 per cent. of carbonate of magnesia, delivered at Stettin for 2l. per ton. It may be worth while for some of our manufacturers of aerated waters to look into these offers.



CRAWSHAW'S ANILINE DYES.

A VARIETY of aniline dyes in crystals are offered to the trade, put up in sixpenny boxes, by Mr. Crawshaw, of Burnley. The advantage of these crystalline dyes over the liquid ones is in point of economy, a sixpenny packet being equal to a large quantity even of concentrated liquid. The specimens of dyed ribbons supplied by Mr. Crawshaw as a show-card are particularly brilliant in colour.

GRAFTON'S REGISTERED CORK-SCREWS.

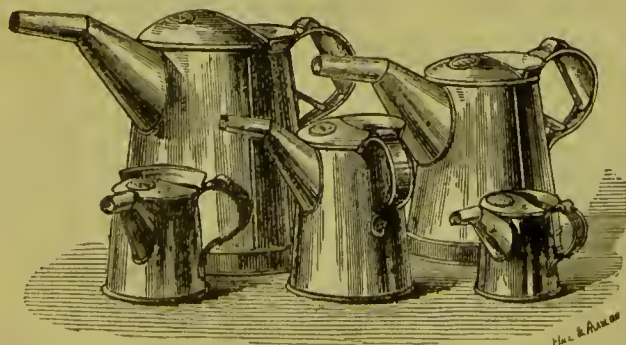
THE object of the neat little invention of which we show an engraving is to transform a common cork into an ornamental finish to the bottle. By passing the screw through the cork of an Eau de Cologne bottle, for example, the consumer can at once remove the cork, and, by leaving the screw in, a handsome stopper remains.



The screws are especially suitable, too, for bottles containing greasy or sticky substances, cements, varnishes, &c. They are supplied in Britannia metal, electro-plate, or gilt, at prices to retail at from 3d. to 6d. each. Chemists will find them worth adding to their stock of sundries.

PATENT MEASURES.

MR. PAYNE, of Wiveliscombe, introduces a new measure for oils and liquids generally, the idea of which is that the liquid may be poured direct from the measure into a bottle or any vessel



without the aid of a funnel. The engraving shows the construction. The measures are made of tin, in various sizes, and are sold at low prices.



TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of the CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of the CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

FOR DISPOSAL.

"Students' Herbarium," 15s. Hill, 8 High Street, Horncastle.

Cistern for paraffin oil, with patent measuring tap. 6/242.

Flat circular globe and tall narrow cylindrical show bottles. 6/242.

Smith's "Pharmaceutical Guide to First and Second Examinations," last edition, 5s. 21/242.

"British Pharmacopœia," 1867. 3s. 6d. Post free. Corke, Ticehurst.

Clinical thermometer in ivory case. New. Clark, Chemist, Stourbridge.

Nearly new, dentist's lathe, vulcaniser, rubber, teeth, tools, forceps, books, &c. Magor, Chemist, Truro.

Offers wanted for six gross empty 4-oz. Eau de Cologne bottles in half-dozen boxes. Alpha, 13 Whitefriargate, Hull.

Second-hand 5-grain 24 pill machine, brass rollers, in good condition, price 14s. Colton, Selby.

Soda-water rack, Burrows', 12 dozen, nearly new, 17s. 6d.; tin still, 1½ gallons, with condenser, &c., new, 15s. 26/242.

Thirty volumes of "Pharmaceutical Journal," well and newly bound. Offers in cash. 22/242.

Churchill's "Diseases of Children;" Gray's "Anatomy," 15s. 22/242.

Attfield's "Chemistry;" Lescher's "Pharmacy." J. B., 21 High Street, Bangor.

Vermilion, finest deep, 3 lbs. 10 oz. Cash offers solicited. James Talbot, Fisherton, Salisbury.

4 6-gallon globes. Mr. J. Swyer, 131 Brick Lane, Bethnal Green, London.

Shop bottles, fixtures and soda-water machine. Alpha, 96 St. John's Road, Hoxton, London.

2 3-gallon pear-shape carboys. Small upright case. Insull, Chemist, Hanley.

"Pharmaceutical Journal," 1871-3, unbound; also posted Saturday. Williamson's "Chemistry;" Smith's "Guide, Preliminary and Minor." Nearly new. J. C. Phillips, Tenbury.

A 3-gallon Lynch's patent tincture press, nearly new, and without a fault; cost 7l. 12s. 6d. Address offers to L., 44 Wilmington Square, Clerkenwell, W.C.

Offers wanted for the "Pharmaceutical Journal," from January, 1868, to September, 1873. Address, W. Boocock, 35 Chestergate, Macclesfield.

A Southall's Materia Medica Cabinet, in good condition, cost 25s. No reasonable offer refused. Chemicus, 1 Castle Street, Reading.

A microscope by Messrs. Baker. Cost 3l. 3s. last April. What offers? Also Ramsbotham's "Obstetric Medicine and Surgery." Halse, 10 High Street, Leominster.

Cylindrical electric machine, complete, with numerous appliances. Price 4l., cost 15l. J. Roberts, 15 Mosely Street, Newcastle-on-Tyne.

Southall's Materia Medica Cabinet, with notes on wrappers. Cost 50s. Price, 15s. Chemist, Post Office, Eastcheap, London.

Offers wanted for jar of about 33 lbs. Potassii Cyanide. Good sample. Also jar of 6 lbs. inferior. Dearden, Keighley.

Halse 10-guinea galvanic apparatus; some of cells broken, otherwise complete. Price 3*l.*, or offers. Good lever printing press, type, &c., wanted. 243/3.

Pill machines, 5-grain, 24, iron frame, marble slab, 11s.; wood frame, 8s. 6*d.*, with rollers; Maw's hand mirror stand, 5s. Campkin, Chemist, Cambridge.

Dental show case, 9 by 11 inches, bent plate glass, with polished plate-glass shelf in centre, mirror back, lock and key; in perfect condition. Price 45s., or exchanged. 7/242.

The "Pharmaceutical Journal," January, 1873, to September, 1874, inclusive. Half price. Omega, 393 Fulham Road, London.

An Elias Howe sewing machine; new. Cost price, 7*l.* 10s. Will take 5*l.* cash, or to that value in shop decanters, pill and ointment jars. Woolstencroft, Chemist, Carnforth.

Scarificator, lamp, and glasses, complete in brass-bound mahogany case; outside bracket lamp; Maclise's "Anatomy," 36 coloured plates, 15 by 22. W. Dunscombe, Brixton.

Eight gross of 3 and 4-oz. good dispensing bottles at 8s. 6*d.* a gross; two gross 12-oz. at 12s.; about 12 gross odd bottles (mostly 6-oz.) chipped and lettered, at 5s. 6*d.* Andrews, Eastbourne.

1 mahogany flat counter glass case, about 3 feet square, price 20s.; 6-hole cigar show case (mahogany), 33 inches long, 10 inches high, and 10 inches wide, price 21s. J. Perkins, Oakham.

A collection of questions which have been asked at the Minor, 2s. 6*d.*; also a collection of prescriptions given to dispense at the examination, 1s. Mr. Tully, Chemist, Rotherfield, Tunbridge Wells.

Bentham's "British Flora," 1,295 original drawings, 2 vols., latest edition (1865), perfectly new and uncut. Price, 31s. 6*d.* (published at 3*l.* 10s.). D., 161 Seven Sisters' Road, London, N.

Mohr's Burette, with stand, 7s. 6*d.*; Liebig's condenser, large, 5s.; lot of long-necked receivers, and various chemical apparatus, at nominal price; also lot of shop bottles and earboys, cheap. J. Floyd, Bury St. Edmunds.

Southall's Materia Medica specimens, 18s. 6*d.*, cost 25s.; Barber's "Pocket Pharmacopœia," 3s., 6th edition, cost 5s.; Cooley's "Latin Grammar," just new, 3s., cost 5s. H. E., 11 Lower Phillimore Place, Kensington, W.

23 12-yard rolls paraffin wick, assorted, large sizes, 9*d.* roll; bell metal mortar, 163 lbs., 16 inches across top, 12 inches outside measurement. What offers? Mr. B. Alexander, Huntingdon.

A 9-foot counter, mahogany front and top, fitted with 14 drawers and till, price 10*l.*; 30-inch show jar, handsome label "Magnesia," price 70s.; show jar, fig. A Maw's list, price 20s.; and various other show earboys and jars. A. B., 8 Frederick Place, Caledonian Road, N.

Maw's tooth forceps; Latin Dictionary; Copeland's "Dictionary of Practical Medicine," with 16 prescriptions, 4 vols.; Owen's "Conspectus," "British Pharmacopœia," "Materia Medica;" Beasley's "Pocket Formulary," "First Steps to Chemistry," and other books. All in good condition (cheap). A. B., Post Office, South Hackney, London, E.

To Chemists and Dentists.—100 gallon bottle of Barth's nitrous oxide gas, Clover's facepiece, two way'd stopcock, supplemental bag and stopcock, one set of M'Adam's mouth props, packing case for the lot. Price, 6*l.* 13s. 6*d.*; for saleable patents or drugs of same value. Apply, W. Parker, 284 Manchester Road, Bradford.

Four gross paraffin chimneys of the best clear glass and finest quality, of various sizes, 14s. per gross, crates free, cost 18s. Twenty-three 12-yard rolls paraffin wick, assorted large sizes, at 9*d.* per roll. 21 40-oz. stoppered bottles; 39 20-oz. ditto; 33 15-oz. ditto; 43 8-oz. ditto; 39 4-oz. ditto; in all 176, stoppered, wide and narrow-mouthed, of white glass and labelled, for 4*l.*, including packages. Gibson, Chemist, Gooch Street, Birmingham.

Lancet, *Science Gossip*, and *Nature*, week after publication, unsoiled, half price; also "Students' Herbarium of Official Plants," and Oliver's "Botany," both new and cheap. Mr. Higginson, Newferry, Birkenhead.

36 half-tins sardines; 12 each, 1s. 6*d.*, 1s., and 6*d.* Day's Japan blacking; $\frac{1}{2}$ dozen, 6*d.* Travis' colloid; $\frac{1}{2}$ dozen 6*d.* Hughes' beetle powder; 2 dozen 6*d.* sauces; 24 lbs. boiled sugars; $\frac{1}{2}$ dozen 2 ounces Bagot's extract meat; 1 gallon stoneware filter; small pepper mill; 56 lbs. glycerine; 2 lbs. 1-grain calomel lozenges; 1 lb. hyd. c. creta; 3 dozen female syringes, boxwood cases; 2 dozen boxes cigars (samples on application). All the above at 25 per cent. from cost, or exchange for glass case and goods. Thresh, Buxton.

Guaranteed perfect. Hassall's "Food Adulterations," 16s.; Noad's "Students' Text Book Electricity," equal to new, 10s.; Watt's "Dictionary of Chemistry," 5*l.* 10s.; Arnott's "Physics," 2 vols., 7s. 6*d.* (published at 31s. 6*d.*); Cullen's "Physiology," Maiu's "Vegetable Physiology," Davis "On Acute Hydrocephalus," Bingham "On the Bladder," Scott "On Diseases of the Joints," Thomas's "Homœopathic Practice," Bushnan's "Hydropathy," Parkin "On Epidemic Diseases," Lardner's "Animal Physiology," "Truths and their Reception in Relation to Homœopathy," Sampson "On Homœopathy," Clarke's "Diseases of Children," first part, Jahr's "Médicaments Homœopathiques," 2s. 6*d.* each, post free. "Chemist," Church Street, Hadleigh, Suffolk.

One hundred packets of Gillard's cattle spice, clean, 30s.; 12-gallon copper still and worm tub (old copper price); two Sykes' hydrometers; 2 lbs. bal. Canada, 5s.; one cwt. japanned treacle cistern, 5s.; 28 lbs. of silica, 3s.; one doz. of Rimmel's Christmas robins, 5s. 6*d.*; Thompson's "Animal Chemistry," 7s. 6*d.*; Cullen's "Nosology," 6*d.*; Normandy's "Qualitative and Quantitative Analysis," 25s.; Turney's "Chemistry," edited by Liebig, seventh edition, 7s. 6*d.*; Grant's "Outlines of Comparative Anatomy," 5s.; White's "Veterinary Art," 1s.; Blair's "Grammar of Chemistry," 1s.; Mariner's compass, in mahogany box, 3s.; spirit level, brass frame, 1s. 6*d.*; lot of harness blacking, 6*d.* and 1s. tins; Whele's centrifugal fruit dresser, new, 2*l.* 15s., cash or exchange; brass injector, 3s. 6*d.* R. C. Mason, Bromsgrove.

Set tooth instruments, consisting of large and small tooth keys, spring forceps, straight and curved forceps, two-bladed gum lancet, elevator in morocco roll-up pouch, price only 20s. Set tooth forceps, consisting of large tooth key, right and left upper molar forceps, upper and lower stumps ditto, upper and lower bicuspid ditto, lower molar and upper central ditto, punch and gum lancet, nearly new, in roll-up morocco pouch, price only 35s. Set pocket instruments in morocco case, consisting of abscess knife, scalpel, seton needle, gum lancet and tenaculum, all in tortoiseshell handles, 2 directors, 2 probes, caustic holder, polypus forceps, catheter scissors, spatula and needles, price only 20s. Mahogany case post-mortem instruments, nearly new, cost 2*l.* 2s., price only 25s. Set cupping instruments in morocco case for pocket, consisting of scarificator (12 blades), 3 glasses, lamp, &c., cost 2*l.* 2s., nearly new, price only 15s. Mahogany case amputating instruments, cost 3*l.* 10s., price only 1*l.* 10s. 6 blue syrups, japanned covers and gold labels, 16-oz. size, 1s. each; 4 40-oz., 6 32-oz., 9 16-oz., 25 10-oz., 14 8-oz., 15 6-oz. shop rounds, nearly all labelled, only 25s. the lot. Two gum lancets, each three blades in tortoiseshell handles, cost 10s. 6*d.* each, price 5s. each. Offers requested for the whole of the above. Apply to J. B. Leslie, Chemist, Trippet Lane, Sheffield.

WANTED.

Type and press. Kay, Chemist, Stainland.

4-ounce Eau de Cologne bottles, new or second hand. Must be cheap. Harper, 15 Lorne Street, Moss Side, Manchester.

Squire's "Companion to Pharmacopœia" (last edition), Attfield's "Chemistry," Royle's "Materia Medica," "Selectæ e Prescriptis," "Pharmacopœia Londinensis," Bentley's "Botany," "Virgil" (Latin), Redwood's "Supplement to Pharmacopœia," Tanner's "Index of Diseases." All in good condition. State lowest price. W. Tarnsworth, South Normanton, Alfreton.



THE month of September, like its predecessors of 1874, has shown an unfavourable difference as regards export trade in comparison with the corresponding month of 1873. But the decrease is not so serious as in August, when we had to report a falling off of over two millions. The export trade for September reached the total of 21,464,876*l.*, which was 810,349*l.* less than in September 1873. This continual progress downwards is somewhat discouraging, and leads us to consider whether we have indeed as a commercial nation touched the highest point of all our greatness, as some gloomy prophets would have us believe. We are not of those who regard the Board of Trade balance sheet as the unerring gauge of England's greatness or happiness. We believe that a check on our material prosperity might have the effect of invigorating our moral force, and restoring Great Britain to the position among the nations of Europe from which, in the pursuit of wealth, she has unquestionably receded. But a permanent decline in our productive and commercial energy as a nation is not, we think, threatened. When we consider the immense colonies which, in all probability, if wisely ruled, will for ages yet proudly pay allegiance to the mother country, and remember that the peopling of these has only commenced, comparatively, we cannot fail to see what unlimited prospects are still before us, which will yet give to our commerce periods of leaps and bounds such as Mr. Gladstone described it as taking a year or two ago.

A fairly active demand has been manifest for British manufactured chemicals, but no sufficient demonstration has been made to affect prices to the advantage of sellers. Soda has not held its ground, and crystals have been quoted as low as 5*l.* Mercury is again stronger, and is now quoted at 23*l.* 10*s.* to 24*l.* per bottle. English quinine is steady at 8*s.*, but French has declined again, standing now at 7*s.* 7*d.* We hear that an unusually large Government contract for quinine has just been announced, which will doubtless have the effect of tightening the market for some time to come, and may, indeed, cause an advance of price. Prussiate of potash has been bought readily at 1*s.* 2*d.* Bleaching powder has declined to 10*s.* A singularly strong demand for brimstone has sprung up, in consequence of which prices are firmer. A report from Sicily informs us that the producers are unable to supply the requirements of shippers fast enough, so it is probable that this article will command still higher rates. Nitrate of soda has made another advance, and important sales have taken place at 1*s.* 3*d.* above late rates. The expected arrivals are being rapidly disposed of, and still higher quotations are looked forward to. Sulphate of ammonia has been in good request; the supply, however, continues exceedingly scanty, and but a few small parcels have changed hands. There has been a fair demand for yellow prussiate at quoted rates. In sulphate of copper business has been active at the late advance; manufacturers have shown a decided reluctance to quote for forward delivery.

Three drug sales have been held since our last, and fair quantities of produce have been disposed of, but prices have undergone but slight modifications. The speculation in camphor has subsided, the arrivals of the cargoes which we referred to in our last having supplied the stock, which is now sufficiently abundant. Turkey opium is somewhat higher, and is following the course we predicted six months ago. At the last drug

sales 12 cases of Chilian iodine, containing 98.50 per cent. of iodine, free from lead, were bought in at 8*d.* per ounce. It is the importation of this competitor that has so remarkably reduced the price of iodine. The combined makers are ready to sell at a loss in order to beat any rival out of the field, or force him into their fold. Certainly, the price will not long continue so low as 8*d.*, which must be an unremunerative figure. Musk sold well at slightly advanced rates. Some arca nuts were sold at 48*s.* per bag. Balsam of Tolu now commands a good price, 4*s.* 1*d.* having been paid for some. At the previous sales a tin of ambergris of middling quality was disposed of at 43*s.* Calisaya bark was bought readily. Castor oil still in abundant supply.

We have recently pointed out the unusually low price of turpentine, and we hope some of our readers have taken advantage of the good market. During the past month its position has considerably strengthened, and though a little flat for the moment, American spirits can hardly be purchased for less than 27*s.*

Our reports of an exceptionally good olive crop seem to be confirmed. With regard to this, and also as information respecting the prospects of lemon and bergamot juice, we refer to the following important advices which we have received from Mr. Ainis, of Messina:—

OLIVE OIL.—There is no material change to report on the whole. The crop may now be considered as good all over this island, except at Avola and Syracuse, where the trees yielded abundantly last year, and cannot give the same result this year. Throughout the Calabrias a fair average crop is expected, although the continued heat and strong southerly winds have caused some damage, but nothing can be said with accuracy much before November. Present prices are actually lower than they have been for many past years, and they ought to encourage purchasers to take advantage of them before any unforeseen event, such as an unexpected demand brought on by cheap prices, might come to disturb its course and suddenly enhance its value.

LEMON AND BERGAMOT JUICE.—Holders of last season's lemon still insist on their old pretensions; makers, following this example, ask the same price for their future production, and the result has been a complete inactivity. For bergamot the case is different; makers desirous to sell at least part of their production for want of funds have accepted at the rate of 41*l.* per pipo f.o.b., on the basis of 48 ounces citric acid, for delivery November to February. Some of these purchases are for London account. In my opinion lemon juice must go up. The production this year will be smaller than last, as lemons are all of splendid quality and better adapted for packing.

The market for shollac is depressed, and is likely to continue so, in consequence of the large stocks. Cutch and gambier have been speculated in somewhat freely. Camwood has gone up in price, in consequence of a failure of supply.

THE BUSINESS of Letchford & Co. was transformed into a limited liability company last March. The first half-yearly meeting of the company was held on the 17th ult., when a dividend of 10 per cent. on the paid-up capital, free of income-tax, was declared. It will be seen from our advertisement pages that the directors offer 2,500 unappropriated shares of the company at par.

Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mining Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

CHEMICALS.		1874.		1873.	
ACIDS—		s. d.	s. d.	s. d.	s. d.
Acetic	per lb.	0 4	to 0 4½	0 4	to 0 0
Citric	per lb.	4 3½	0 0	4 5	0 0
Hydrochloric	per cwt.	5 0	7 0	4 0	7 0
Nitric	per lb.	0 5	0 5½	0 5	0 5½
Oxalic	per lb.	0 7	0 7½	0 7½	0 7½
Sulphuric	per lb.	0 0½	0 1	0 0½	0 1
Tartaric crystal ..	per lb.	1 7½	0 0	1 7	0 0
powdered ..	per lb.	1 7½	0 0	1 7	0 0
ANTIMONY ore	per ton	200 0	240 0	240 0	280 0
crude ..	per cwt.	0 0	0 0	0 0	0 0
regulus ..	per cwt.	0 0	0 0	0 0	0 0
star	per cwt.	46 0	47 0	57 0	58 0
ARSENIC, lump	per cwt.	20 6	0 0	20 0	20 6
powder	per cwt.	10 0	10 3	10 3	0 0
BRIMSTONE, rough ..	per ton	145 0	150 0	127 6	145 0
roll ..	per cwt.	10 0	10 6	9 9	10 0
flour ..	per cwt.	11 6	12 0	11 6	12 6
IODINE, dry	per oz.	0 8	0 8½	1 3	0 0
IVORY BLACK, dry ..	per cwt.	8 6	0 0	8 6	0 0
MAGNESIA, calcined ..	per lb.	1 6	0 0	1 6	0 0
MERCURY	per bottle	470 0	480 0	300 0	0 0
MINIUM, red	per cwt.	24 6	0 0	24 6	25 6
orange ..	per cwt.	36 0	0 0	35 6	0 0
PRECIPITATE, red ..	per lb.	7 0	0 0	5 2	0 0
white ..	per lb.	6 11	0 0	5 0	0 0
PRUSSIAN BLUE ..	per lb.	0 0	0 0	0 0	0 0
SALTS—		1874.		1873.	
Alum	per ton	165 0	175 0	170 0	180 0
powder	per ton	185 0	190 0	190 0	0 0
Ammonia:					
Carbonate	per lb.	0 7	0 7½	0 7½	0 7½
Hydrochlorate, crude,					
white	per ton	640 0	0 0	650 0	0 0
British (see Sal Am.)					
Sulphate	per ton	370 0	380 0	360 0	370 0
Argol, Cape	per cwt.	90 0	98 0	87 0	96 6
Red	per cwt.	76 0	86 0	75 0	86 0
Oporto, red ..	per cwt.	32 0	33 0	32 0	32 6
Sicily	per cwt.	53 0	58 0	60 0	65 0
Ashes (see Potash and Soda)					
Bleaching powd.	per cwt.	10 3	10 6	12 0	0 0
Borax, crude	per cwt.	40 0	66 0	50 0	90 0
British refined ..	per cwt.	68 0	0 0	92 6	95 0
Calomel	per lb.	6 6	0 0	4 9	0 0
Copper:					
Sulphate	per cwt.	27 0	28 0	31 6	33 0
Copperas, green ..	per ton	65 0	70 0	60 0	62 6
Corrosive Sublimate p. lb.		5 8	0 0	4 0	0 0
Cr. Tartar, French, p. cwt.		120 0	122 0	111 0	112 0
brown ..	per cwt.	95 0	105 0	95 0	100 0
Epsom Salts	per cwt.	5 9	6 6	5 9	6 3
Glauber Salts	per cwt.	6 6	7 0	4 6	5 6
Lime:					
Acetate, white, per cwt.		14 0	21 0	14 6	21 0
Magnesia: Carbonate ..	per cwt.	42 6	45 0	42 6	45 0
Potash:					
Bichromate	per lb.	0 6½	0 0	0 8½	0 0
Carbonate:					
Potashes, Canada, 1st					
sort	per cwt.	34 0	34 6	35 9	36 0
Pearlshes, Canada, 1st					
sort	per cwt.	44 6	45 0	47 6	0 0
Chlorate	per lb.	0 11	0 0	1 3	0 0
Prussiate	per lb.	1 2	0 0	1 3	0 0
red ..	per lb.	2 10	2 11	2 10	2 11
Tartrate (see Argol and Cream of Tartar)					
Potassium:					
Chloride	per cwt.	7 0	0 0	8 0	0 0
Iodide	per lb.	10 6	0 0	19 0	20 0
Quinac:					
Sulphate, British, in					
bottles	per oz.	8 0	0 0	8 9	9 6
Sulphate, French ..	per oz.	7 7	0 0	9 6	9 9½
Sal Acetos	per lb.	0 10	0 10½	0 11	0 0
Sal Ammoniac, Brit. cwt.		44 0	45 0	44 0	45 0
Saltpetre:					
Bengal, 6 per cent. or					
under	per cwt.	21 6	22 0	25 6	26 3
Bengal, over 6 per cent.					
per cwt.		19 6	21 3	21 6	25 3
British, refined ..	per cwt.	25 6	26 0	28 9	29 9
Soda: Bicarbonate, p. cwt.		15 6	0 0	18 0	0 0
Carbonate:					
Soda Ash	per deg.	0 2½	0 0	0 2½	0 0
Soda Crystals per ton		100 0	102 6	135 0	0 0
Hypo-sulphite, per cwt.		0 0	0 0	15 6	16 0
Nitrate	per cwt.	11 3	11 9	15 0	15 3
SUGAR OF LEAD, White cwt.		45 0	46 0	47 0	48 0
SUGAR OF LEAD, Brown, cwt.		38 6	39 0	33 0	34 0
SULPHUR (see Brimstone)					

		1874.		1873.	
		s. d.	s. d.	s. d.	s. d.
VERDIGRIS	per lb.	1 1	to 1 5	1 1½	to 1 6
VERMILION, English ..	per lb.	6 2	0 0	4 6	4 8
China ..	per lb.	5 6	5 7	4 3	4 4
DRUGS.		1874.		1873.	
ALGES, Hepatic	per cwt.	60 0	180 0	80 0	200 0
Scotrine ..	per cwt.	102 6	240 0	110 0	320 0
Cape, good ..	per cwt.	36 0	39 0	30 0	39 0
Inferior	per cwt.	30 0	35 0	17 0	29 0
Barbadoes ..	per cwt.	40 0	180 0	60 0	200 0
AMBERGRIS, grey	per oz.	0 0	0 0	40 0	45 0
BALSAM—		1874.		1873.	
Canada	per lb.	2 0	0 0	2 6	0 0
Capivi	per lb.	2 8	0 0	2 11	0 0
Peru	per lb.	7 2	7 4	8 6	0 0
Tolu	per lb.	3 10	4 1	1 9	1 11
BARKS—		1874.		1873.	
Canela ulba	per cwt.	16 0	27 0	15 0	28 0
Cascarilla	per cwt.	19 0	25 0	25 0	30 0
Peru, crown & grey ..	per lb.	0 10	2 7	0 11	2 8
Calisaya, flat ..	per lb.	2 9	5 9	3 0	3 6
quill ..	per lb.	2 10	5 4	3 3	4 3
Carthagenia ..	per lb.	0 8	2 0	0 10	2 0
E. I.	per lb.	0 7	4 0	0 4	4 6
Pitayo	per lb.	0 4	2 0	0 6	2 2
Red	per lb.	1 3	3 10	1 10	6 0
Buchu Leaves	per lb.	0 2	1 0	0 1	0 9
CAMPION, China	per cwt.	77 6	0 0	75 0	0 0
Japan ..	per cwt.	77 6	80 0	80 0	82 0
Refin. Eng. per lb.		1 2	0 0	1 2	0 0
CANTHARIDES	per lb.	3 0	5 0	7 0	0 0
CHAMOMILE FLOWERS p. cwt.		50 0	54 0	45 0	75 0
CASTOREUM	per lb.	4 0	20 0	6 0	20 0
DRAGON'S BLOOD, Ip. p. cwt.		95 0	220 0	100 0	240 0
FRUITS AND SEEDS (see also Seeds and Spices).		1874.		1873.	
Anise, China Star per cwt.		115 0	125 0	140 0	150 0
Spanish, &c.	per cwt.	12 0	27 0	38 0	42 0
Beans, Tonquin	per lb.	3 0	3 4	1 9	2 6
Cardamoms, Malabar					
good	per lb.	4 11	5 6	4 6	6 3
inferior	per lb.	2 0	4 10	3 6	4 5
Madras	per lb.	2 9	3 10	3 0	4 6
Ceylon	per lb.	4 6	4 9	4 3	4 6
Cassia Fistula	per cwt.	14 0	0 0	10 0	20 0
Castor Seeds	per cwt.	5 0	9 0	5 0	10 0
Cocculus Indicus ..	per cwt.	14 6	17 0	13 0	27 0
Colocynth, apple ..	per lb.	0 4	0 10	0 4	0 9
Croton Seeds	per cwt.	42 0	44 0	45 0	54 0
Cubebs	per cwt.	22 0	23 0	22 0	26 0
Cummin	per cwt.	16 0	20 0	18 0	26 0
Dividivi	per cwt.	11 0	15 0	11 0	15 0
Penugreek	per cwt.	8 0	16 0	12 0	20 0
Guinea Grains ..	per cwt.	25 0	27 0	25 0	28 0
Juniper Berries ..	per cwt.	9 0	10 6	9 0	10 6
Nux Vomica	per cwt.	7 0	13 0	8 0	12 0
Tamarinds, East India,	per cwt.	7 0	16 0	5 0	18 0
West India, new ..	per cwt.	10 0	18 0	16 0	32 0
Vanilla, large	per lb.	80 0	95 0	73 0	83 0
inferior ..	per lb.	54 0	78 0	30 0	70 0
Wormseed	per cwt.	0 0	0 0	0 0	0 0
GINGER, Preserved, per lb.		0 6½	0 10	0 6	0 7
HONEY Chili	per cwt.	35 0	46 0	33 0	42 0
Jamaica ..	per cwt.	38 0	52 6	28 0	44 0
Australian ..	per cwt.	38 0	48 0	25 0	40 0
IPECACUANHA	per lb.	4 0	4 7	3 0	3 6
ISINGLASS, Brazil ..	per lb.	2 10	5 6	2 9	5 4
Tongue sort ..	per lb.	3 2	5 8	3 2	5 6
East India ..	per lb.	1 1	4 5	2 0	4 6
West India ..	per lb.	5 0	5 6	4 9	5 4
Russ. long staple ..	per lb.	8 6	13 0	8 0	12 6
inferior ..	per lb.	4 0	8 0	3 6	7 6
Simovia ..	per lb.	3 3	5 0	2 6	4 6
JALAP, good	per lb.	0 8	0 8½	1 4	1 5
infer. & stems ..	per lb.	0 7	0 7½	0 10	1 2
LEMON JUICE	per degree	0 2½	0 0	0 2½	0 0
LIME JUICE	per gall.	2 6	2 8	1 10	2 5
LIQORICE, Spanish per cwt.		40 0	70 0	35 0	70 0
Liquorice Root ..	per cwt.	11 0	16 0	10 6	15 0
MANNA, flaky	per lb.	2 6	3 0	2 6	3 3
small	per lb.	1 2	1 5	1 4	1 9
Musk, Pod	per oz.	20 0	45 0	20 0	38 0
Grain	per oz.	42 6	57 0	50 0	57 0
OILS (see also separate list)		1874.		1873.	
Almond, expressed per lb.		0 11	0 0	0 11	1 0
Castor, 1st pale ..	per lb.	0 4½	0 5	0 5½	0 0
second ..	per lb.	0 4½	0 4½	0 5	0 5½
infer. & dark ..	per lb.	0 4	0 4½	0 4½	0 0
Bombay (in casks) ..	per lb.	0 4½	0 0	0 4½	0 0
Cod Liver	per gall.	3 8	6 3	3 6	6 0
Croton	per oz.	0 3	0 4	0 3	0 4
Essential Oils:		1874.		1873.	
Almond	per lb.	25 0	0 0	30 0	0 0
Anise-seed	per lb.	9 0	0 0	10 9	0 0
Bay	per cwt.	0 0	0 0	65 0	70 0
Bergamot	per lb.	10 0	25 0	15 0	18 0
Caraway, (in bond) per oz.		2 3	2 5	2 4	2 5
Caraway	per lb.	5 3	6 0	5 6	6 3
Cassia	per lb.	4 9	0 0	5 9	6 0
Cinnamon	per oz.	0 8	7 9	1 0	5 0
Cinnamon-leaf ..	per lb.	0 2½	0 3	0 2	0 3
Citronelle	per lb.	0 1½	0 0	0 1½	0 2
Clove	per lb.	9 6	0 0	5 6	5 9
Juniper	per lb.	1 10	2 0	1 3	2 4
Lavender	per lb.	1 10	5 0	1 10	5 6
Lemon	per lb.	7 0	10 0	14 0	15 0

E. B.—Blue vitriol is not a poison according to legal definition, and may therefore be sold by grocers or anybody. You are unjust in your complaint about grocers selling so many of the profitable articles belonging more properly to the drug shop. The English Government will never protect any trade as you would have yours protected; it is only for exceptional and public reasons that the sale of poisons is confined to a certain class. The chemist and druggist is the only tradesman whose title is protected by law. Be thankful for any mercies.

J. A. T.—Huile de Cade or Juniper Tar has been recommended as an external remedy for certain cutaneous diseases. It is generally used as an ointment, made with equal parts of the oil and hard or other fatty matter. Or it may be applied as a lotion by diluting it with spirit.

Fidelio.—Indian Brandee. The following formula was communicated to us in our February "Notes and Queries":—Sp. Eth. Nit., and Tinct. Rhei Co., aa z viii.; Syr. Simpl., z ij.

A. B. C.—An abstract of Sir James Paget's lecture on "Corns and Bunions" was published in the *Student's Journal* of about six weeks ago, but we cannot give you exactly the date.

H. J. H.—*Incense.* The following formula is followed by some of the Catholic churches:—Benzoin and Storax, of each 4 ozs.; labdanum and myrrh, of each 6 ozs.; cascarilla, 3 ozs.; oil of cinnamon, 8 minims; oils of lavender and bergamot, of each 20 minims; oil of cloves, 10 minims. Mix and pass through a coarse sieve.

Constant Reader.—The addition of an ammoniacal solution of a salt of gold (the ammonio-iodide for example) will render marking-ink unaffected by the chlorides, cyanide of potassium, &c. The ink to which this addition is to be made should be an ammonio-tartrate of silver, prepared by mixing 1 oz. arg. nit. with 3 drachms of acid tart., adding a little water, which sets free nitric acid, then dissolving the tartrate of silver in solution of ammonia. The addition of a little gum and colouring matter will also be necessary.

Pat. U. Lee.—Extract of Patchouly is made by dissolving 10 fluid drachms of otto of patchouly and 2 drachms of otto of roses in 1 gallon of Sp. Vin. Rect. *Frangipanni Bouquet* may be thus prepared, according to Piesse: Ess. Vetiver, 3 ozs.; Ol. Neroli, 15 m ; Ol. Santal, 30 m ; Otto Rose, 40 m ; Ess. Musk, 3 drachms; Ess. Violet, 3 ozs.; Ess. Ambergris, 6 drachms; S. V. Rect., q. s. ad, 20 ozs. This correspondent asks also for formulae for Ylang-Ylang and Stephanotis, which we have not by us.

Scruple.—As the Pharmacy Act stands no case can arise which would bring a *bond fide* assistant under its penalties. It is no affair of his, legally, whether his employer is registered or not.

J. A. J.—According to the terms of your indenture you are now the apprentice of the widow or executors, whichever may be the nominal proprietors of the business.

W. A. B.—Engineering, as you seem to suspect, is a little out of our sphere, and perhaps for that reason we have never heard of the Government Engineering Department. There is a Civil Engineering College at Cooper's Hill, Surrey, established by Government to supply civil engineers to India. Johnston's "Civil Service Guide," published by Longmans (& 3s. 6d.), would perhaps be useful to you.

Harry.—The following is a formula for Syr. Ferri Phosph. Co. (Parrish's). We are finding the frequent reprinting of this formula somewhat monotonous. Dissolve sulphate of iron, 5x., in boiling water, z ij., and phosphate of soda, 3xij., in boiling water, 3iv.; mix and wash precipitated phosphate of iron. Dissolve phosphate of lime, 3xij., in 3iv. of boiling water, with enough hydrochloric acid to make a clear solution; precipitate with liquid ammonia, and wash precipitate. Add to the fresh precipitates phosphoric acid, 3xx., dissolved in water; when clear add carbonate of soda, 9ij., and carbonate of potassa, 5j., and then sufficient hydrochloric acid to dissolve the precipitate. Now add powdered cochineal, 3ij., mixed with sugar, 1biij. (Troy); apply heat, and, when the syrup is formed, strain it.

Dose, a teaspoonful, which contains about gr. j. of phosphate of iron, gr. lijs. of phosphate of lime, and smaller quantities of the alkaline phosphates.

G. S.—*Hematoxylin.* Macerate commercial extract of logwood (mixed with some quartz sand) with six times its volume of ether for several days. Pour off the liquid and distil from it the ether. The syrupy residue, if left to itself, would dry up to a gummy mass; but by mixing water with it the hematoxylin crystallises out. To remove the colour these crystals must be dissolved and recrystallised.

Bela.—*Gazogene Powders.* For the 2 pint gazogenes 5 drachms 2 scruples bicarbonate of soda, and 4 drachms 2 scruples tartaric acid.

J. A. T.—Hydrate of magnesia is prepared, according to the French Codex, by mixing calcined magnesia with 30 or 40 times its weight of water and boiling for twenty minutes. The mixture is to be poured on a cloth and allowed to dry. The magnesia will have fixed 31 per cent. of water. We presume a saccharated hydrate might be made by mixing sugar with the above.

A hopeful youth of Liverpool, who adopts the misleading pseudonym "Quercus Britannica," writes to us thusly:—

"Dear Sir,—Will you kindly inform me through the columns devoted to correspondence in the CHEMIST AND DRUGGIST how I may obtain the degree of Ph.D.? i.e. to what may I refer (calendar, &c.) from which I can learn all that is necessary to qualify for the examination. As I am destined to go abroad my father desires me (in fact, says it is almost essential) for me to have a degree of some kind, as it goes "a long way" with foreigners; he wanted me to take B.Sc. (London), but this idea is absurd: in the first place, Where is the time? as I am employed from eight to eight daily at work in a laboratory. Secondly—Would any B.Sc. condescend to stand behind a shop counter, when he could do better elsewhere. So, to make things right, I have resolved to go in for something easily obtained (that won't take up much time). I won't condescend to have a "bought degree. If you can recommend me something more suitable than Ph.D. (German) I shall be greatly obliged. Should there, however, be nothing, kindly inform me respecting the degree of Ph.D. Formerly, I believe, this examination was conducted by sending questions from Germany, and the candidate to answer how and as he liked; is this the case now? i.e., is the examination conducted *in absentia*?"

We fail to discern precisely whether the foregoing is written in sarcasm or in simplicity. If the latter is the case, our correspondent has applied to the wrong shop. Perhaps, however, some of the worthy Ph.D.'s who adorn the ranks of pharmacy will enlighten this ingenious aspirant to smuggled honours. Specimens of the questions and lowest prices for cash will oblige.

J. J.—Dr. Begiel on the "Human Hair." (Renshaw). 2s. 6d.

J. N.—Blaine's "Veterinary Art." (Longmans). 18s.

J. McC.—Parrish's "Practical Pharmacy." A new edition has just been issued. English publishers: Baillière, Tindal & Cox, King William Street, Strand. Proctor's "Lectures on Pharmacy." London: Churchill. Muter's "Chemistry." London: Simpkins.

D. G. asks where he can obtain a small volume, pocket size, entitled "Medicines: their History, Uses, and Modes of Administration," for the use of students.

Antrim.—We confess ourselves quite unable to recommend as a substitute for ambergris some substance which, at a lower price, would answer equally as well. You say you use it "to bind and retain the perfume." What your theory may be is incomprehensible to us. In a combination of perfumes much, no doubt, depends on the nice adjustment of the various odours, but we are not aware that such an action as you speculate upon can be scientifically attributed to any of them. Cooley gives the following formula for a "fictitious ambergris"—Orris root, spermaceti, and gum benzoin, of each, 1 lb.; asphaltum, 3 or 4 ozs.; ambergris, 6 ozs.; grain musk, 3 drs.; oil of cloves, 1 dr.; oil of rhodium, $\frac{1}{2}$ dr.; liquor of ammonia, 1 fl. oz.; beaten to a smooth hard mass with mucilage, and made into lumps whilst soft. But he adds the discouraging comment—"This fraud is readily detected."

M. H. A.—On referring to page 354 you will observe that we did not profess to give a formula for Spirit. Ammon. Aromat. Our correspondent wanted a cheap substitute for sal volatile; this he had, and "nothing more." Of course the compound would not dissolve guaiacum.

Della.—The only means by which you can remove the colour from the petroleum is to submit it to distillation. If, however, the quantity is large, and you are without suitable apparatus, we should recommend you to make a virtue of necessity, and, by mixing it with rape or cotton seed oil, sell it as the latest new thing in "lubricators."

Md.—Balsam of honey: Balsam of tolu, 2 ozs.; styrax, 2 drs.; opium, $\frac{1}{2}$ dr.; honey, 8 ozs.; spirit of wine, 32 fl. ozs. Dose, a teaspoonful. Put up in 10 or 12 dram bottles, with a 1 $\frac{1}{2}$ d. stamp over the cork, and a supply of printing round the bottle, and charge 1s. 1 $\frac{1}{2}$ d. for each.